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No. 8.

STRAY STRAWS FROM DR. C.C. MILLER.

FIVE CENTS is enough to invest in sacaline till more is known about it.

SLICED ONIONS are given to bees 24 hours before uniting, by Wm. Stolley.—*A. B. J.*

F. L. THOMPSON has been doing some good work culling from foreign journals for *Review*.

GLEANINGS is troubled to know what's done with so much sweet clover. M. M. Baldridge says some of it is used for tanning.

CHAFF HIVES are the things for East Tennessee, with its ever-changing warm and cold spells in winter, according to Adrian Getaz in *A. B. J.*

A CRUSADE ought to be started against respectable papers—at least respectable in other respects—for advertising such frauds as Electropoise.

THAT MAN BOARDMAN must be squelched. He's trying to break in on established traditions and customs, getting us to hanker after old straw skeps and square frames.

I'M GLAD the big-little-hive discussion is not to be closed yet. Not that a positive decision is sure to be reached, but incidentally the discussion brings out points of value.

THE WISCONSIN CONVENTION seemed to think the "expert and careful bee-keeper" could get along without separators. Don't you think he'd get along just a *little* better with them?

MRS. EDITH MILLER is the name that stands at the mast-head as editor of the new paper, *The Kansas Bee Journal*. If Mrs. Edith is a genuine live bee-woman, that paper ought to succeed.

BROOD-SPREADING seems to be taking a back seat. Of 23 replyers in *A. B. J.*, only one endorses it unqualifiedly. Doolittle and a few others use it less than formerly, and the majority will none of it.

LARGE-HIVE advocates are appearing in *A. B. J.* Adrian Getaz says, "Eight hives of thir-

teen frames each will probably give more surplus, and certainly as much, as thirteen hives of eight frames each."

DO BEES WORK on strawberry-blossoms? Abbott says, in *A. B. J.*, that Secor's wrong in thinking they don't. I don't remember ever seeing them at it, and I've had strawberries by the acre; but that isn't proof positive.

"I PLACED in a long trough, in separate piles, wheat flour, wheat Graham, rye flour, rye Graham, ground oats, oat-meal, buckwheat flour, and corn meal, and found the bees would hardly touch any thing else till the cornmeal was all gone."—O. K. Omstead, in *A. B. J.*

"NO DANGER of the swarm absconding or doubling up with others as long as you trap all the queens," says C. H. Dibbern, p. 258. But I'm sorry to say swarms sometimes return to the wrong hive, which is the same as doubling up.

THE Australian Bee Bulletin says, at the last of January, "Swarming may now be said to be practically over." I should think so! That accounts for the big crops they get there. We could get big crops too if we would work the poor bees right through the winter.

THE PAST WINTER has been a terror across the sea. In England the mercury went down to 8° below zero; and one man says in *B. B. J.*, "If a recurrence of this extreme weather takes place, we should make some experiments on the American plan of cellar wintering."

ALFALFA IN WISCONSIN. A report of a third of an acre is given by S. Favil, in *Prairie Farmer*. First year it didn't show much; second year gave two good cuttings, and four cuttings the third year. Flourishes in drouth that checks red clover, and doesn't need re-seeding.

FOUNDATION made of two-thirds ceresin, we are told on p. 272, is sold in Germany for *what it is*. I'm afraid there's some mistake about that. There's much complaint in the German journals about adulteration, but I never saw a word in favor of the mixed article, nor any of it offered for sale.

CLOVER SEED. Waldo F. Brown says, in *Prairie Farmer*, "In my experience the mammoth clover will in good seasons average about

one bushel of seed more to the acre than the medium; and from reports at institutes the past winter, the alsike will give nearly double the yield of the red clover.

ADULTERATED HONEY from America, according to one writer in *Centralblatt*, floods the German markets to the extent of 5,500,000 pounds. On another page of the same journal, H. Guehler, the C. F. Muth of Berlin, asserts that there is probably very little adulterated American honey, what is adulterated being generally done by Germans in Germany.

HASTY says in *Review* that he believes the leading thinkers no longer hold to the old theory that the queen at impregnation receives into her spermatheca a supply of spermatozoa that lasts for life. Don't you be fooled by noise, Hasty. That battle is being mostly fought in Germany, and the bulk of the leading thinkers hold to the old theory.

CATCHING SWARMS. Here's how it's done in Florida. A box 14x8x4 inches placed on the end of a long pole, placing in it a queen with a handful of bees and hanging it out every day during the swarming season. Clipping the queens' wings throughout the apiary, the bees in coming out to swarm will cluster around this box, sometimes 7 or 8 swarms together, and are hived as one swarm.—A. B. J.

BEE PARALYSIS. Joshua Bull, in *Review*, says he failed to cure a very bad case with salt brine, then made a success in this way: "I took a large spoonful of salt, and dissolved it in a little water, just enough to get the salt all dissolved, and mixed this with a gallon of honey and fed it to them just as fast as I could get them to take it." That cured for good. Now the question is, whether it will work the same with a bad case down south.



THE LANGSTROTH VS. THE CUBICAL HIVE.

THE QUESTION CAREFULLY CONSIDERED BY AN ADVOCATE OF THE LATTER; A VALUABLE AND READABLE ARTICLE.

By H. R. Boardman.

The lifting and carrying of hives in and about the bee-yard in the hot and busy part of the season, when the hives are stored with honey, is certainly an important item of the hardest, most trying work of the apiary. Then the carrying in and out of winter quarters, where bees are wintered indoors, all suggests, in a forcible manner, the convenience of hives for such manipulation.

The square hive is most perfectly adapted to this purpose. I could suggest no improvement in that respect. When lifted by the cleats it

makes a well-balanced load, and is easily carried. In this respect the least that can be said of the long hive is that its construction suggests little thought of convenience.

I have seen two men tugging away at a Simplicity hive, to carry it into winter quarters, when either of them would be able to pick up a square hive of the same weight, and carry it in quicker and easier.

In these times of sharp competition and short honey crops it is the sum total of these little items that sometimes tips the balance toward the side of success or failure in bee-keeping. It is only along the lines of strictest economy that we can now hope for success.

The queen insists on a round, compact brood-nest, when unrestricted. In carrying out this natural instinct in the long shallow hive, the brood nest is necessarily carried into the surplus-chamber. In order to correct this fault (?) perforated-zinc queen-excluders and other expensive devices are used to keep the queen out of the surplus-chamber. The trade in perforated zinc for this purpose has become an important item. That this is wholly a fault of the hive, it is only necessary to say that, with the square hive, this fault does not appear. The queen never goes into the sections unless by some mistake or awkwardness of management. The brood-chamber furnishes just the natural requirements for a brood-nest.

A few years ago I was one day in the apiary of a friend who used the Simplicity hive. He had been at work taking off sections. "My bees are very cross," said he. "I am having a disagreeable muss. The frames in my hives, in the upper and lower stories, are built solid together; and when I lift off the section-chamber it pulls up the brood-combs from the lower hive. I am getting a little disgusted with the way it works. How do you manage this trouble?"

"I never had any such experience," said I. "Let me see your hives."

We lifted the cover from a hive that had just had the sections removed. I did not wonder that my friend had become disgusted. There was enough to disgust any order-loving bee-keeper. The long top-bars had sagged until the bee-space over some of them was at least an inch, others were less, while some were nearly straight. All of these spaces, of course, had been filled with irregular masses of comb and propolis, and were stored with honey.

"I do not need to tell you that all this trouble is the fault of your hive. Look at those thin top-bars. Their strength is out of all proportion to their length, and the weight they have to support. I think the remedy for this trouble is a properly constructed hive."

"I guess you are nearly right," said he, "and if this accumulation of old traps were all off my hands I would improve upon your suggestion as well as my own past experience, and

I will assure you that I would make some very radical changes in starting again.

To mend these faults, honey-boards of various kinds have been introduced. The bracing and strengthening of the frames in various ways to prevent sagging was resorted to, and finally the thick top-bar came to cure a multitude of evils. It certainly is gratifying to note that this improvement is at least a safer extreme than the other.

It is claimed, as a valuable feature of the long hive, that it furnishes a large amount of surplus room close to the brood-nest. I think it remains to be shown that this is a valuable feature; that there is any advantage in such an arrangement. I am quite sure that this is also a mistaken economy.

were disposed in one tier to adjust them to the long hive, so that a greater number would come next to the top of the brood-combs, would it need much argument to demonstrate that we have spread out, or dispersed, the heat over more surface, and at the same time placed a part of the sections farther from the heat-center? We have also increased the outside surface exposure to a considerable extent. I am quite sure that the second or third tier of sections on the square hive is in a more favorable position for good work than are the outside sections on the long hive. What is the testimony of the bees themselves? Have your bees got nicely at work in the sections? Go out into the yard and examine a few cases, and see where they commence their work and how they continue it. This is what I think you will find, if you have the long hive: Work beginning centrally in the cases, and extending toward the outside, finishing in the central part, may be, before work is much advanced in the extreme outside. If a second case is on, work begun centrally, and well advanced, before the outside of the lower tier is finished—if you do find this, it will, no doubt, suggest to you that the central portion is the preferred part of the case for work.

There is one argument yet unanswered, that stands upon the side of the long hive. It is one which presents a barrier more potent for opposition in the human mind than all the other arguments that reason can array. It is popular; it is in general use. The beginner inquires, "What hive shall I use?" He is recommended the one in general use, and the question is settled. Any other hive would have been as readily accepted. By far the larger part of the trade in hives has

been, and is now, with a class of bee-keepers who know nothing at all of the requirements of a bee-hive. Having once adopted any style of hive, it is by no means an easy matter to make a change to some other kind, nor is it advisable to do so without some very good reasons. Every bee-keeper knows how important it is to start right; but the question after all is, how to be sure we are getting that right start.

A tight or fixed bottom to a bee-hive is a feature that I have never been able to appreciate. Its economy or use I have never been able to comprehend. A great deal of my valuable manipulation of hives depends upon the open bottom. The tiering-up feature, perhaps, is the most important, but is not all, by any means. Examination from the bottom, without opening the hive, has for me some decided advantages.



CLUSTERS IN SQUARE AND LONG HIVE.

A considerable degree of heat is necessary in order to carry on comb-building. How to conserve and economize this heat in the surplus-chamber to the best advantage is an important question; and especially when the nights are cool, it sometimes becomes difficult and perplexing. The best and most satisfactory work in the sections can always be obtained directly over the brood-nest, and in a central compact form tiered up to the capacity desired. Being placed directly over the heat-center, it best conserves and economizes the accumulated heat from the brood-nest within; and, being in a rather compact form, protects from needless surface exposure without. In the square hive the sections are thus tiered up in a compact form over a compact brood-nest. Now if, instead of being thus tiered up, these sections

In the spring I wish to keep in touch with my bees, and know at all times their exact condition. To examine them I pass rapidly along on the back side of the hives, weighing each one with delicate scales which I have in the ends of my fingers, and at the same time I tip the hive up and count the spaces between the combs in which there are bees. I have learned to do this work very rapidly; 30 minutes is sufficient time to go over 150 colonies. When I wished to examine the combs briefly, to locate the queenless colonies that may be in the yard, or for any other purpose, I tip the hives in such a manner that the sun will shine straight in at the bottom. With a few puffs of smoke I drive the bees from between the combs to be examined; then by pulling them slightly apart I have a good view clear to the top of the hive. This has the advantage of being quick and easy, and can be carried on at any time without attracting robbers; and in early spring you can take a look at the brood-nest without exposing it to the cold. The open-bottom hive is, in my mind, intimately connected with the solution of the winter problem. My hives have been carried in and out of winter quarters for years, without bottoms; others report that they are not able to make it a success. I was puzzled at first, and thought it was because they did not know how; but I suspect it is the exposure of the large open bottom of the long hive that causes disturbance of the bees. Now, may be this is also the key to the origin of this feature.

East Townsend, Ohio.

[You say there is one argument yet unanswered that stands upon the side of the long hive. Aye, there's the rub. It is the standard. It is adopted in the United States and Canada, in many of the islands of the sea, in New Zealand, and also in Australia. We may admit all your arguments in favor of the cubical hive; but what are we going to do about it? The situation, it seems to me, finds a partial parallel in this: Our present system of spelling is outrageous. All schoolchildren have to waste years over something that might be much better spent upon some other department of learning. Printers have to waste tons and tons of type for useless silent letters; and they have to waste years of time in setting them up and in throwing them down again. Pressmen have to waste press room, to say nothing of valuable space on the pages of our books and journals, and all for what reason? Because we are helpless, and can not change. Our books for centuries have been printed so as to accord essentially with our present methods of spelling.]

The Langstroth system is adopted throughout the United States and a large part of the world; but, unlike the spelling of our language, it is not outrageous. By many it is considered unique. We have for years made our hives so that the earliest frames we ever made will fit the hives of our present manufacture, and *vice versa*.

There is one point that it seems to me you have not considered in speaking of the advantages of the cubical hive. It requires wider lumber, or else boards of one or more pieces matched together, because the hive is tall or deep; and the fewer cracks we can have in the side of a bee-hive, the better. The long hive

takes narrow barn-boards—lumber comparatively cheap in price; and a side or end of such a hive can be made of a whole board. It is true, *your* hive may be; but when you go beyond ten or twelve inches with the boards, you have got to pay more than *pro rata* price for the extra width. It appears, therefore, that the Langstroth hive is the cheaper of the two; and it is, therefore, cheaper to the bee-keeper.

There is one other point that has not, perhaps, been considered, and that is this: Bee-keepers who use the long hive seem to produce as much honey as those who use the cubical; at least, in all my readings (and I am forced necessarily to read a good deal on the subject of bees, both published and unpublished manuscript) I have never run across a case that I remember, where the square or cubical hive had the advantage in *net results* of comb or extracted honey produced.

There was a time when we had deep hives; and the experience of my father as well as my own seemed to be that the Langstroth frame was more easily manipulated and withdrawn from the hive. In your case you overcome the disadvantage somewhat by the use of the side-opening hive; but these are used but little, comparatively, if I am correct; and, besides, it is not possible to make such a hive as tight as one that has permanent sides and ends all around.

As to your last sentence, about the bees flying out from the bottom of the shallow hive, preparatory to putting them into the cellar, I believe you are entirely correct. I came to that conclusion myself after seeing you handle your hives, and trying the same in our own Langstroth.

It is not my purpose to make an attempt to overthrow your arguments, but only to give our readers an opportunity to see the question on both sides. You have fairly presented many of the arguments in favor of the long hive, and I only wished to add a few more that perhaps you have overlooked.—ED.]

MANUM IN THE APIARY.

EARLY SPRING MANAGEMENT OF BEES; HOW TO LOOK OVER COLONIES WITHOUT WASTING TIME UNNECESSARILY, OR EXPOSING BEES TO COLD AIR.

By A. E. Manum.

"Good-morning, Leslie. Are you out taking a sun-bath this fine morning?"

"I have come over to get a setting of eggs. I want to try your new breed of fowls."

"Well, just go into the house, and my wife will put them up for you. I want to show this man where to put his horse."

"Manum, who is that chap?"

"His name is Abe Jones. He came here last week to see if I would allow him to work with me one day each week, during the bee season, and show him what I could in the management of bees, as I now manage them, and I consented to do so. He has a few bees."

"Well, that is a new kink in the business. It's a grand chance for him. He can care for his own bees, and at the same time take lessons of you. Does he pay you any thing for it?"

"Yes, he pays for his dinner, and for hay for his horse; in other words, he offered me \$10.00 for the season."

"Well, Mr. Jones, I suppose you are here for business; so we will get our smokers and go for the bees."

"Yes, Manum, I want you to put me through while I am here. I am not afraid of bees or work."

"Now, Jones, it is early in the season; and I want to say to you now that a colony of bees must not be kept long exposed to the cold air. We simply need to open the hives, and quickly look in to see if we can assist the bees in any way. In the first place, we will go through the yard, and open all the entrances to their full size by pulling out the slides. It being a warm spring day, and bees are flying nicely, this will give them a chance to clean house; and when we get through work, we will return the slides, because they require but a small entrance through April and the first half of May."

"Won't there a great many bees get lost or die on the snow?"

"No doubt a few of the old bees will never return to their hive; but that we can not help; however, it is so warm to-day there will be but few lost. If there were much wind, or if the air were chilly, I would not open a hive. You would, therefore, lose your journey this time."

"We will open this hive, No. 1, and take them by course. First, raise the cap very carefully, so as not to disturb the bees. Now remove the cushion, and next the ventilator and honey-board. I puff a little smoke to drive the bees down. It seems too bad, they are so very quiet. There—you can see now; they have a plenty of sealed honey: another puff of smoke, and now we see a small patch of capped brood. This colony is all right. They have a laying queen, plenty of honey, and are strong in bees. Now, Jones, as you were timing me, how long did I have this colony exposed?"

"I am surprised when I tell you that the hive was open only 41 seconds. Now, it would have taken me at least five minutes to satisfy myself of the condition of the colony; and if I learn no more to-day, I shall feel well paid for this day."

"Here we are to the 23d hive, and all have so far been nearly alike as to condition; but here we have a change. This colony is light, and short of honey. I will cover the bees at once with the cushion, and go to the honey-room for a comb of honey. I break the cappings, that the bees may get at the honey more readily. Now I will place it near the cluster, so the bees will have it near by, where they can keep it warm. I must take out a comb here from the cluster, to see if there are any eggs, as I see no capped brood. Yes, there are eggs; they are all right. Now I will cover them with this old meal-bag, and over it put the honey-board and cushion. This is to keep them as warm as possible. If I can keep them along until May, I can then assist them with brood and young bees from a strong colony."

"Why not give them brood now, and have the benefit of it sooner?"

"Because they are not strong enough to properly care for it; and, furthermore, it would be bad policy to take brood from any colony this early in the season. It would damage a strong colony more than it would help a light one. In fact, it would be no great help to the light one; better by far leave the brood in the strong colony to hatch, and then give the light one a few of the young hatched bees. You must remember that it is only the first week in April, and we are liable to have several days of winter weather yet. My experience teaches me that, the less I do with the bees thus early, the better for them. Here is No. 28, with a mouse-nest in it, and two of the outside combs badly mutilated. Close the entrance at once: I will try to kill the mice with this new ventilator. Here is a new use for my ventilator. It is just the thing to punch the mice with. There! there! and there! I guess that is all there are—three of them. Now I will remove the nest, and put in two combs partly filled with honey, as I see this colony has not an overabundance, and they are quite strong in bees."

"Oh, my! this 29th colony is dead."

"No, there are a few bees away down in that corner. I will remove a comb and examine. There is the queen—a nice one too. I will set the comb back, cover the hive, and get a partially filled section. I usually save out a few for this purpose. There! this section, you see, has wood sides, making a box of it. I'll now put 40 or 50 bees with the queen into this box, and break up the colony entirely. I can in this way keep the queen several days by keeping the box in a warm room in the house. Now, when I come to look over the remainder of my bees, which I hope to do this week, I may find a queenless colony. If I should, this queen will come handy. Next week, the work will be a little different. Be sure to choose a still, warm day, or you may lose your journey."

Bristol, Vt.

[I take it from the foregoing that Mr. Manum is going to give us a series of practical articles especially designed for beginners, so that not only Abe Jones, but a large number of Abe Joneses, will have the benefit of tutor Manum's instruction. As Mr. Manum makes his bees pay, I have no doubt that many of the veterans can glean here and there a fact worth much to them. Yes, Mr. M., I hope you will give us a full report of your instructions to Abe, and give him a hearty hand-shake for me.—ED.]

SEPARATORS.

A READABLE AND PRACTICAL ARTICLE FROM
A PRACTICAL BEE-KEEPER.

By N. D. West.

I notice on page 210, B. Taylor would have us fall in line with him—make our sections narrow, and cleat our separators, and all this and that.

Why, Mr. Taylor, we can't, *can't* do it. We ought not to do it. Why, sir, if we should change our sections every year or two, we should not get anywhere. We take only one step ahead, and then we only step over in a side rut in the road, when we change; no better, but we get another rut in our road, and it costs something to change. Now, sir, it does not matter so much what kind of sections we use, if all would use one kind, so that a box of honey would be a box of honey, just as much as a barrel of flour is a barrel of flour. So far as the size is concerned, it would be far better for the supply-dealers, better for the producers, better for all who have anything to do with the honey crop, if we could have a uniform section and shipping-crate. How many poor widows have had to sell their bees at less than half their value because their husbands had kept changing their hives, their sections, etc., from time to time, until their barn, shop, and every store-room on the place was filled with all kinds of bee-rubbish, good for nothing! The poor widow can't run the bees, and has to sell them at auction in about 14 kinds of hives, together with the rubbish, to the highest bidder at about the price of kindling-wood. If everybody would make his hives and sections alike, we could buy and sell bees at any time for their value; but we are not all alike, and so we must differ from other folks.

The $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{8}$ is the section that I am using, and I like it best of all. First, $4\frac{1}{4} \times 4\frac{1}{4}$, because more use this size than any other. Second, I want them $1\frac{1}{8}$ wide because that width suits me best, all things considered. I am producing honey for the money there is in it, and I can as yet get more clean money from my bees by using a section $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{8}$ than I can by using a section $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{8}$. I have had a little experience with these two widths. A commission merchant told me that my honey would bring more in the narrow section, which weighs from 10 to 12 ounces, or one pound with glass on. Two years ago I used 6000 of these $1\frac{1}{8}$ sections, and about 16,000 of the $1\frac{1}{8}$ section, and last season I used up about 2000 of the $1\frac{1}{8}$ sections that I had left, and I gave them a fair test, and the $1\frac{1}{8}$ -wide section was decidedly the more profitable section for me. I wish I had the figures to give exact, but I can't now find the paper that I kept the account on. But I figured it as closely as possible.

To begin with, I will say that I can use one kind of section as well as the other on the hives, as 14 sections $1\frac{1}{8}$ wide fill one of my half-clamps, including separators and follower; and 16 sections $1\frac{1}{8}$ wide fill the same clamp, including separators and follower, and two clamps cover one hive; sections run the same way the brood-frames do on this kind of hive; and, again, I have 200 swarms in smaller hives, the clamps of which hold 21 of the $1\frac{1}{8}$ sections, and 24 sections $1\frac{1}{8}$ wide; and on these hives the sec-

tions run across the brood-frames. Now, Mr. Editor, I figured from 100 colonies in this way: Say 100 colonies fill four clamps of honey each (I will not give all the figures now, as they are laid aside). I could not get any more clamps filled of one kind than of the other, but the best work was done in the clamps with wide sections. But the 3200 sections $1\frac{1}{8}$ wide did not weigh as much as did the 2400 sections $1\frac{1}{8}$ wide. But in using the $1\frac{1}{8}$ section I had 800 sections more to pay for; also the extra foundation to fill them, besides all of the time needed to handle them. This I do remember: that, if I sold the honey in the $1\frac{1}{8}$ section from the 100 swarms for 10 cents per pound, I should have more money than by using the $1\frac{1}{8}$ section, and selling the honey at 11 cents per pound. Both were sold at the same price.

My shipping-crates hold 24 of the $1\frac{1}{8}$ sections, and the same crate will hold 28 of the $1\frac{1}{8}$ sections, but the latter does not weigh as much per crate, so the cost is more to buy crates for the narrow section.

Again, the comb in the narrow sections is more liable to be attached to the separators than are the wide ones, from this fact: If a hive does not stand level, so that the foundation in the narrow box can swing but a trifle, it will cause the bees to attach the comb to the separators more or less.

Mr. Taylor says that, long ago, he discovered the great value of drawn empty combs in sections for getting a large yield of white comb honey; and he found, too, that, by using them, he wanted separators. I am glad of it. So do I; but I don't want the kind he uses.

I was going to say more about separators when I commenced, but will not now. But I will say a word about what I have noticed with drawn comb in the sections. I prize them very much, and use one row (the center one) in every clamp that I put on my hives before I tier up. Here, again, the narrow sections are more liable to be occupied with brood than wide ones. I will admit that the section 5 inches high has an advantage over a lower section of the same weight.

Middleburg, N. Y.

[On my first bicycle-tour I called at the home of N. D. West, in 1890. The gentleman himself was absent, but I was kindly shown about by his son. I saw evidences enough to convince me that Mr. West was one of the bright, intelligent bee-keepers of York State. I afterward learned that he was a successful manager of some 300 or 400 colonies distributed in one or more out-yards. I had the pleasure of making his acquaintance at one or more of the York State bee-conventions. At the meetings which I attended he was full of ideas, and was ready to give them to his brother-workers. The article is a fairly good sample of what he knows about bees; and the arguments he presents seem to be almost incontrovertible, not the least important of which is the idea of having regular goods—something that everybody can use, and which have a par value among bee-keepers everywhere.—Ed.]

RAMBLE NO. 130.

AT ST. HELENA.

By Rambler.

UR Spanish neighbors had regained their equilibrium in the morning; and as we departed they gave us a kind "adios."

St. Helena, 18 miles from Napa, is another of those beautiful towns we have so often observed. Like Napa it is surrounded with vine-

yards, and boasts of one of the largest wineries in the State. It would have been very pleasant to camp in such a town; but thinking we might get among the festive Spaniards again, we pushed along. Our friend H. L. Jones, the gas-man of San Francisco, having our welfare in mind, said we would find a beautiful camping-place beyond St. Helena—streams of running water; fir and madrone trees interlocking their branches, making a cooling shade, and, above all, it was near the residence of his friend W. M. Cole.

We found the camping-place all he had pictured it, and Mr. Cole was a Missourian of the "walk right in and help yourself" order. It seems that he delighted to have the camping public rest under the shade of the trees. For his special friends he had a cosy nook on the banks of the stream near his residence, which he offered to us; but as we were to stop only one night we preferred the more public place near the highway. Mr. Cole's house was so embowered under fruit-trees that but a small portion of it could be discerned. A thriving family of boys and girls were romping among the trees. As to how Mr. C. was getting along in other directions, I know not; but in the matter of a family he was a success—not the evidence of things hoped for by some, and not found, but here was evidence and reality.

Mr. Cole was a bee-keeper after a fashion. He allowed his few colonies to manage things on their own way in the far corner of his garden. They held proud possession of a few cracker and soap boxes, and, according to Mr. Cole's ideas, they were a strain of bees known as the French bee. One of their shining characteristics lay in their fighting qualities. A neighbor across the valley brought in some Italian bees; but the French bees pitched into them. They had a general fight, and "fit and fit," and the French bees came off victorious.

"But I ain't no bee-keeper," said Mr. C. "I kin go out into the woods and get more honey than I can from my hives. These French bees work better in trees than they do in hives, and the woods are full of bee-trees." Said he, "You tell Harry Jones, the gas-man, to come right

out here and set up a bee-corral. It will pay him."

Mr. C. made some complaint about moths getting into his hives of French bees, and didn't see why, when they were such good fighters, that they let that pesky moth in to eat up a whole colony. Then grapes and French bees did not agree. In his little vineyard of choice grapes he left two rows for family use; but the French bees got after them after awhile, and cleaned them all out, and left nothing but the shucks.

Mr. Cole's swine-corral was located near the bees, and the pen and the hives were elbowing each other, as it were, for room. This led to a discussion in relation to hog and honey production vs. hog and hominy. I told him our gaseous friend in San Francisco proposed that line of labor.

"Just the thing," said Mr. Cole. "This is the best hog and bee country north of the city; and such an energetic fellow as Jones would make things lively up in this country. As you observe, my bees and hogs agree well together. And say, stranger, did you ever know of a bee stinging a hog?"

I had to confess that, though I had seen many hives located near hog-pens, I had never witnessed or heard of such a case.

"Well, it's a fact, sir, a bee will never sting a hog. If you get the scent of a hog on your hands or clothing it is the best of preventives to bee-stings. Smokers! wouldn't have one around. Just step over into the pen and rub your hands on the old sow's back, and you will have apifuge enough to last half a day." Unfortunately I am not so situated as to test Mr. C.'s plan. But when Mr. Jones gets his ranch started, and has several fat sleek porkers near at hand he can call up Peggy, Betsy, or Hannah, as the case may be, and secure the apifuge. It is quite possible, though, that the hog antidote could be successfully practiced with only our friend's French bee.

There were other small apiaries in this vicinity, but they were not numerous, and not managed according to modern methods.

Our fine camping-place was made desolate again in the morning, and we were rolling through that other beautiful town, Calistoga. The attractions of this resort are sulphur springs, mountain scenery, and climate. The vineyards shade off here into prune-orchards, which, healthfully and morally, is a good shade for the people.

Our friend Jones, of gas memory, had, at some preceding time, spread himself all over this country; and, knowing what he was talking about, he advised us to cross the St. Helena Mountains to Lake Co. by what is known as the Oat Hill route. We followed his advice, with "childlike and bland" confidence. We had an arduous climb again, winding up and around the mountain-spurs. As we were lifted



by the grade high above the Calistoga Valley, a scene worthy the artist's brush lay beneath us. The level valley is broken in many places by quite sizable hills; these, covered with trees and luxuriant deep-green foliage, looked like so many islands rising in the midst of vineyards, orchards, and homes, while the distant Coast Range gave a fitting background to the lovely landscape. I was also told that a view from this mountain road was peculiarly pleasing and novel when the fog was resting low down in the valley, every thing being hidden from view except the projecting hills, and the appearance was that of a large lake dotted here and there with islands. On the mountain summit we found a cabin and a refreshing fountain of water, where we were glad to rest our horses and eat our noonday lunch.

The geological outcroppings here were of a hard and stern character. The rocks were jagged and pointed, and we could imagine many an ancient castle with its towers and battlements frowning down upon us. Such a geological upheaval would naturally presage something of an unusual character; and here upon the northern slope of the mountains we find a profitably worked quicksilver-mine, known as the Napa Consolidated Mine. Quite a little town is perched here upon the rough and rugged side of the mountain. There is scarcely room for dwellings; but by digging out niches, removing boulders, and placing long stairs, the thing is accomplished. The mines are owned by 300 stockholders, all Maine capitalists. The laborer earns all the way from \$2.00 to \$3.00 per day, and quite a sprinkling of Chinamen are employed. The shafts, or tunnels, are run in horizontally from the side of the mountain; and little trucks, with a donkey attached, run out the ore to the smelter. Around the latter, where the fumes of mercury rise, is the only unhealthful place to work, and much of this is overcome by wearing sponges over the mouth and nose. It is said that corporations are soulless; but it seems that this corporation has a soul in the direction of temperance, and, let us presume, in other directions also. The stockholders, being Maine men, have brought the prohibition principles of that most Eastern State, and planted them here among the hills of the most western of our family of States; and, though great inducements have been offered to allow liquors to be sold in the only store, which is owned by the company, it is not allowed, and is kept from the grounds as far as possible.

A few miles beyond the mines we found a fine camp beneath the outspreading arms of oak-trees. Here we quietly rested over Sunday, the 26th day of August. Bro. Wilder, taking Rom. 14:5 for a text, went off in the morning early with his rifle, in search of signs of deer. There were some sheep around that country, so the signs, supposed deer-tracks,

were plentiful. He also found another fellow with a rifle who had strangely taken the same text; and when they returned in the heat of the day the signs on their faces plainly echoed the words of the Preacher when he said, "Vanity of vanities, all is vanity."

We are now in Lake Co., called by the inhabitants the Switzerland of America. We had previously heard of so many Switzerlands of America that we suspected these people were hallucinated by local pride, and we resolved to have a lookout for the grand features. Our first day in the county was not favorable to Swiss impressions. It was hot, 108° in the shade, and the roads very dusty. After a long drive, wherein we could find no water for our ponies or dog, we made Lower Lake—tired, hungry, and dusty, and straightway camped.

HONEY AS A DIET.

A REPLY TO C. DAVENPORT, PAGE 217, MARCH 15.

By Thaddeus Smith.

I wrote the article on "Honey as a Diet," printed on page 92, which, through some oversight, appeared without a name to it, and upon which Mr. Davenport makes some comments and criticisms. Mr. D. says he does not agree with me, that a great many people do not like honey or care for it as food or a relish. He finds no dislike for good honey in his locality; but my experience in a different part of this wide country has been the reverse of his. We may both be right, and the apparent contradiction may be owing to the different location and the different class of people we have come in contact with. Mr. D. thinks that only those who never saw good honey dislike it. I can assure him that the good lady who gave me her reasons for not using honey on her table knew what good honey was, and I am confident that most of the persons I have alluded to have had opportunities for seeing and tasting good honey—fine white-clover honey. I have known some progressive bee-keepers who care but little for honey, and do not use much of it in their families; and in the article referred to I called upon bee-keepers, especially those at the "Home of the Honey-bees," to give their testimony as to the amount used in their families. If Mr. D. had read carefully he should not have made the mistake of supposing that the editors wrote the article.

HONEY AT HOTELS.

In a recent trip to Florida, of six weeks, I did not stay long at any one place, and consequently was a patron of many and a variety of hotels. The bill of fare at most of these hotels contained a great variety of all the substantials and delicacies of the season, usually including maple syrup and other syrups; but I found honey on the menu of only three of the hotels that I stopped at. It so happened that I

took a breakfast at the grand Tampa Bay Hotel (cost one dollar and fifty cents), and there I found "orange honey" on the bill of fare. But there was such a grand array of good things displayed on this menu that I did not call for it.

At Atlanta, Ga., I also found "orange honey," and this time called for it. I was brought a dark liquid resembling Florida syrup—fully as dark—which had a bitter and astringent taste. I could not eat it, and called for maple syrup. At another hotel I got some comb honey. The comb was white and tender, but the honey was darker than any fall honey I ever saw in the North. The quality was a great improvement upon the first, but not up to our standard. I should like to hear from A. I. Root in regard to the honey he found in Florida.

UPWARD VENTILATION WITH A VENGEANCE; A SINGULAR CASE.

A friend in Kentucky kept bees many years ago. Thirty years ago he had some of his bees in movable-frame L. hives, and a very nice little apiary; but in the pursuit of other matters he soon lost interest in them, ceased to care for them, would not hive new swarms or have any one else do it. He had so completely abandoned and banished them from his mind that he did not know whether there were bees on his farm or not when I visited him last fall. I looked around his place where he used to keep his bees, but could see nothing left of the old frame hives except the body of one up in the garret of his two-story house, where a fine colony had once flourished and stored large quantities of surplus honey. The hive contained the litter of the combs, eaten up by mice and moth. The frame hives outside were all gone, but there were a few remnants of box hives, some partly broken up, some filled with moth-cocoons, and one without cap or cover, with live bees in it. All were nearly rotten. I do not know positively how long these bees have been in that hive, but I think they have been there 12 or 15 years, and probably longer. The hive had a $1\frac{1}{2}$ -inch auger-hole in the center of the top—uncovered—exposed to rain and snow. To protect them a little I kicked an old hive to pieces (and it was easily done), and laid one of the pieces over the top, with a stone on it. But as there were some strips on top of the hive the board did not fit down close to the hole; it was still open. So much for the introduction, now for the sequel. My friend, his wife, and myself went to Florida. They will remain there until April. I returned March 5th, and am staying at their house with their two sons. I went to look at the bees, and found the hive turned completely upside down, without any cover over it; but the bees were alive, and seemed to be quite strong. I called up the colored man, who seems to be a kind of foreman while the owner is away, and asked him what he knew about the bees. He said, "I

reck'n the mules must have knocked it over; they were in the yard here the other day. They knocked it over once before in cold weather, and I turned it up again." But he could not tell me how long it remained turned over either time. In another place, in the orchard, March 12th, I found another box hive turned upside down and full of comb, no cover on it, and, to my surprise, there were live bees in it. I carefully turned it up and sought the colored man again, who, by the way, is quite intelligent and very reliable. He said the hive had been in that position all winter; he thought the bees were all dead, and he did not pay any attention to it. From the indications around it, and the impression on the grass, where the hive stood, I am satisfied that it did stay in that position all winter; and this has been the coldest winter known here for many years. In December the thermometer was 14° below zero, and in February 18° below, and either down to zero or below every day for three weeks in February. This is a case of extraordinary upward ventilation, and shows what an amount of exposure bees will sometimes endure. But why is it that this is only *sometimes*? There must be some cause for it.

I have a theory in regard to this particular case. There was a great deal of snow—ground covered all the time of the cold weather, and no rain all winter. The combs were level with the bottom of the hive (now top), old and strong, and became covered with snow which remained until warm weather, it being too cold for the heat of the bees to melt the snow above them. This was some protection to them during the coldest weather; but when this melted off they remained in that unprotected condition up to the time that I discovered them. March 19th I examined the hive to see if the bees needed feeding; and in raising the box up, every comb in it dropped out. The exposure to rain, snow, and frost had loosened all the combs from the box. The colony was not large, and there were but comparatively few dead bees. Two combs contained large patches of brood, and they still had plenty of honey. I transferred them to a clean box, and they are doing well. These hives are cases of extreme ventilation, and of upward ventilation at that. They wintered well, but probably will not decide the much-mooted question of sealed covers or upward ventilation. I merely give the facts, without entering into the discussion.

Midway, Ky.

[In regard to the honey I found in Florida, I would say I saw little or none on the tables of the hotels; but I found beautiful honey in great plenty at the homes of all the bee-keepers. I do not think I saw any poor honey even once. Very likely they brought out the best, or saved up some of the best for me. I learned to be very fond indeed of honey from saw-palmetto. And that makes me think I am guilty of putting a wrong title under cut on page 146. It should be saw-palmetto and not cabbage. The cabbage-

palmetto does, however, furnish good honey also. Honey from mangrove and that from saw-palmetto were pretty nearly the only two kinds I found. The honey from orange-blossoms is so often mixed with that from other sources that it is a pretty hard matter to get it any where near pure, as a general thing.—A. I. R.]

HOW TO CONVERT OLD BROOD-COMBS INTO FOUNDATION WITHOUT MACHINERY.

A NOVEL IDEA.

By W. M. Little.

During the past season, 1894, I succeeded in working over old brood-combs to my complete satisfaction. I had about 200 old combs, that had been in constant use for 12 years. I tried rendering them, but could secure but little wax from them, as the cocoons and other substances absorbed all of the wax, and I had nothing left for my labor. So I began to experiment a little. I began with a sharp Bingham honey-knife, trimming down the cells of these old combs (some of them were old transferred combs taken from old box hives ten years ago). I soon found I could cut through the cocoons down to the septum by care, and leave the base of the cell intact; then, turning the L. frame over on a board, cut the right size to fit the frame, thus supporting the comb, and I could trim down the other side in like manner, leaving a sheet with the base of the cells well defined. The bottom of each cell will be filled with the base of the cocoons of all of the past generations bred in them; these, however, the bees remove in a short time, leaving the septum much like the sheet of foundation at the first. If the sheet is torn, or if there are patches of drone comb that I desire to dispense with, I cut it out, and patch it with brood foundation, using melted wax to hold the patch in place until the bees fasten it permanently.

I succeeded in getting 150 combs of this kind rebuilt in a few days in the early part of June last, before the honey-dew began to be gathered by my bees, when they would not build comb of any kind. These combs were mostly built on wired foundation in the first place, and, having been rebuilt, are firm, and stronger than those built first on foundation. After working at cutting these combs down I became quite expert at it. It takes a keen, stiff knife, using cold water to keep the septum stiff, so that it will not stick to the blade, and tear. With a little experience at the business, one can trim them down quite rapidly, and can make brood-combs much more rapidly, and with less waste of wax than by rendering the combs and molding them again. The bees seem to delight in pulling out the base of the old swaddling-clothes of former generations of bees, and mending the rents and patches in the old comb, and working them over.

If my health permits, and the bees have work to the coming season, I will work over a large

number of my old combs this year, as I am well pleased with the result of my experiment last year.

WM. LITTLE.

Marissa, Ill., March 9.

HANS READS A. I. ROOT'S BEE-BOOK.

I reads dot book dru ant dru,
Und I studies it ore and ore,
Mine het it vas most bustin,
I c in not stand upon der floor.
I reads about dot Doolittle,
Und pee-mons by der schore;
I yust can not sit stihll,
I gets me yup and vakes der floor.
I goes to see von nabor-mon,
He gots do, dree hifes or more,
He dell's me me dot does bee-mons
Dravels der gundry ore.
I studiess dot bee-book in und oud,
But I denk dues bee mons
Knows vat dere about,
D.es bees make you look a little oud.
Und as I reads dot pook
I denk, "Hans, you get some bees,
Und dry your luck mit huny,"
Und hife dem in der trees.
I gets mine bees from Alley,
Dot new fan-dangled kind;
He says dey makes der most hunys,
Und works quite to der mind.
I gets my hives all redy,
Und fix d.m out among der trees.
Und I denks "Now, Hans, you bees happy
Mit your lofly little bees."
Does bees gomes out
To haf a li tle fly
Shimney Gristmas!
One sthicks me in der ey!
Dot ey it keeps a swellin,
I can not see no more.
I denk I fix does bees;
I shmoke them do, dre dimes or more.
Does bees dey come a pilin out,
And I runs me all about
To get der hifs all redy
For does lofly little bees.
Does bees crawl up my bant legs,
Und sthings me on der knees,
I runs arount most gracy,
Und get some vater for does bees.
I dink does pees of Alley's,
He says dey bees so kint,
When dey gets a sthinging me,
Dey works quite to der mint.
I hife does bees do, dree times or more;
Mine hart mit dispair was akin,
For yust so sure I haf dem rite,
So sure I vas mistakin.
I calls mine wife to help me oud,
Mide demper vas most rilin,
Ven oud gomes does bees
Yust a bilin'.
Then I say, "Hans, you bees a fool,
To be so long a lookin,"
So I gets me in dot house,
Und gets dot book to look in.
Does bees flies round and round,
In does trees dey sthop not eny;
Mine vife she say, "O Hans!
Der bees so very meny."
I gets does bees right in dot hife,
They goes to makin huny;
I say, "Now, Hans, olty poy,
You ged your bokets full of muny."
I reads about dot Rambler,
Dot funny mon is he;
He no likens the vimens,
But he lofes dot little bee.
But now I bees so happy,
Dot book it helps me oud;
Und I studiess it some more,
To knows what I bees about.
I denk does bee mon's
Heads is level dot rites
Dot book about der bee;
It has helped a greenhorn yust like me.

HANS WONDERBLINKEN.

COGGSHALL'S SPRING MANAGEMENT.

ONE DAY'S WORK AT THE OUT-YARDS OF AN
EXTENSIVE AND PRACTICAL
BEE-KEEPER.

By Harry S. Howe.

On Thursday, May 10, 1894, I received the following card from Mr. W. L. Coggshall:

Friend Harry:—Come over Saturday, and help us make the grand circuit, if weather is favorable. Apple-bloom is nearly over. W. L. C.

West Groton, N. Y., May 9, 1894.

With me the apple-bloom had been for some time over, for I was teaching at that time twelve miles west, near Cayuga Lake.

We always wish to unpack the bees just at the close of apple-bloom, for there is nothing to gather for a time then. If they were unpacked during the flow, they would lose a day or two of honey. There is sure to be a slackening-up of brood-rearing at the time of unpacking, and also when apple-bloom is over; so we bring the two together when we can, for they are not apt to slow up much more for both than for one alone. Of course, the weather has also to be consulted in regard to the best time to unpack, for it would not be well to set them out when a cold wave was expected, even if they had to stay in another week. This time, however, the weather was all that could be desired.

When school was out Friday afternoon, I got out my wheel, and arrived at Mr. C.'s house in time for supper. After supper, Mr. Coggshall, Russel, and I sat down to talk over the campaign for the morrow. Just here, perhaps, is a good place to introduce Russel Stennet, a young man from Virginia, who came North to put the finishing touches on his education as a bee-keeper. This was to be his first trip to the south yards. After talking a few minutes, Mr. C. remarked, "Well, Harry, I have started a new yard this year again."

"Where?"

"In that nice location near Etna we talked about last year."

"Why did you like that better than the others?"

"It is near the station, and will make a good place to store the honey from the other south yards, if I do not want to ship right off early."

"Yes, I remember that we figured out that the Etna station was the nearest one to most of the honey. By the way, how are we going tomorrow?"

"We will take the team and democrat wagon. It would be a rather big load for the buggy; besides, I want to take some smoker fuel."

"When were you at those yards last?"

"I have not been to Ellis since they were packed last fall."

"What time shall we set the alarm-clock?"

"It is a long drive there. Perhaps we had better start by six; that would get us up by five."

After some more talk on bees in general, we went to bed. The next thing I knew, the clock

was ringing away for us to rise. The chores were quickly done, and the wagon run out and loaded with the things that were to be taken. After breakfast, came the seven-mile drive to the Brown yard. Arrived there, Mr. C. showed Russel where to put the team, while I unlocked the honey-house and lit the smoker. The supply of fuel for the season was put in place, and a box of matches in the match-box.

The fifty colonies at this place are in chaff-packed Eclectic hives. It took but a short time to take off and pack away the cushions from the tops, and see that there was no loss. The bees were apparently in need of nothing, plenty of honey having been left the previous fall.

Russel and I put the team out while Mr. C. went over the yard to see that every thing was all right, and that no fire had been left. Then the three miles to Etna quickly passed, where the same business with the team was repeated. This yard required more work, however. It was put in place while the snow was on last winter. Some of the bees were drawn from other yards; others were bought. Those new ones were not in the best shape for rapid handling. The combs of some had grown together so they had to be cut apart. The five miles of road to Ellis is over a high ridge of hills, the last two miles over an old wood road upon which three or four families have settled. Russel said that it looked much as it did down home in the mountains, where they have done no work on the road in years. The land on each side had been covered with pine, which had been cut off, giving place to thickets of chestnuts and brush. The Ellis yard, however, is situated in a fertile valley. We ate our dinner, which we had brought along, before beginning work. For a cold dinner we have found nothing to equal good bread and milk. This time we had a loaf of Mrs. Coggshall's bread, and she can't be beat as a bread-maker. A two-quart can of milk, some strawberry sauce and cookies, taken together, makes a meal which a king might envy. When I go on my wheel, I take my dinner with the people we rent the yard of; but it would not always be convenient for three to drop in on them just at meal time.

This yard of 67 live colonies was set out in a hurry. They are in Mr. C.'s own style of packing-case, which he will describe for GLEANINGS soon. The places where the stands stood were plainly marked in the grass. This yard is the hardest to reach, but every thing is so handy when we get there that we do not have to stay long.

We are now fifteen miles from home, and two o'clock finds us on the road back over the hill. The road we take is, if possible, worse than the one we came by; but we are at Varna at last. Here the work is much the same that it was at Ellis, except that about 40 of the 90 live ones we find are in chaff hives, which do not have to be

handled. When this yard is finished, we drive home rather leisurely. Just after sundown Mr. C.'s little boys stop from their chores to shout, "Here is papa!"

We had driven over thirty miles, unpacked 131 colonies, besides going over 110 colonies that were in chaff hives.

We have a regular system upon which we work, not only in unpacking, but in all the work with the bees. To do rapid work, one must have, first, handy hives and fixtures; second, a system that fits the hives; third, men who are used to both. In the case of that big day's work we had hives of two entirely different patterns, neither one of which has proven itself so superior as to drive the other out of use.

We had a system that is the result of over a quarter of a century's constant effort to systematize the work. We had two men who had worked together more or less for seven seasons; the third was an experienced bee-man, quick to learn, but he had never worked on that system before. We go to work as soon as we reach the yard and every thing is ready. The first step in unpacking is to place the bottom-boards. These are loose. They are placed where they stood last year. They can be told by the places where there is no grass. One man carries them out from the honey-house, where they had wintered, and sees that they are level from side to side, and tipped slightly forward. The others take off the covers from the packing-cases, which hold eight colonies, and place them near where the empty cases are to stand, then the hives are lifted out one by one, after being slightly smoked at the entrance, and placed upon the stands. Care is taken to place the weaker ones where the cases stood, while the stronger ones are placed on the ends of the rows. The empty cases are placed out of the way, but handy for the following fall. The covers are carried out and placed on them, and that is the end of that boxful. This is repeated with each box until all are out. The hives are all looked into to see that they have a queen, etc. Sometimes the one who is looking through the hives calls a consultation of doctors to see what to do to some one that is out of the regular run, or perhaps it is a coroner's jury that is called to find the cause of some mysterious death. Mr. C. himself, however, is rarely at fault in such matters, his long experience enabling him to see at a glance what it would take one of us younger generation hours to study out. He is always willing to impart his knowledge to those about him.

The work of the day goes along without many directions being given. Once telling in the morning is supposed to be sufficient; in fact, Mr. C. very much prefers to have experienced help. Of course, when he has a green hand, he has to keep watch of him and see that he is working to good advantage. The things that are used during the day are all picked up at

once. It seems to be cheaper to drop empty hives, extra covers, etc., where they happen to be, and then carry them all in at once, than to make a separate trip for each article.

Mr. C. says that he is handling bees for the honey, and that, if he can work faster or easier by having things handy, he is going to have them so. He carries his system of rapid work to his farm, and even to the harness. There are no buckles on his harness to unbuckle; those places are all fastened with snaps. His idea is, to get a good system, and then stick to it, study it, perfect it in every detail until you can do your work with the fewest possible motions and the least expenditure of time and strength. One of the best ways to make bees profitable is to reduce the cost of the production of honey.

Groton, N. Y.

PRODUCING COMB HONEY A LA FRANCE.

CAN IT BE PRODUCED OVER TWO EIGHT-FRAME BODIES?

By E. France.

I am asked to give my plan for producing comb honey. I suppose you all know that I am not a comb-honey producer usually, although I have raised some. I have been thinking of working a part of my home yard for this purpose, but I have not got at it. Several years ago I got 100 supers, right size to fit my hives. They hold 24 sections each. I got 4000 sections. I have the most of them yet.

The question that is put to me is this: How would I produce comb honey, using a two-story eight-frame brood-chamber? This would depend on circumstances. If the bees gather and store that much, I must have eight frames full of good sealed honey to winter the bees first; then if honey is coming so they can store more, I will have it put in sections; confine the queen to the lower story with zinc, then put on the sections with foundation starters; put the second story of eight frames full of honey on top of the sections, if the colony was strong. I think it would be best to give them two supers—one over the other. I would not put on the second super of sections at first. Wait until they get crowded for room. As fast as the sections are completed take them out. Give them plenty of work to do between their winter stores and the brood-nest. I am keeping their winter supply overhead to save it. If the frames of honey were below the sections, bees would likely put some of it up in the sections, and I don't want them to do it. I want to give the bees their share, and I will take what I can get after they have theirs.

If the colony is strong they may swarm. If they do, put the queen in a cage, and put her into one of the upper sections, after removing all queen-cells; then in ten days remove all queen-cells again. In ten days more, liberaty

the queen. I have tried this plan with six colonies. In 1886 I got both supers filled with honey—48 sections.

Another plan. As I am working for extracted honey mostly, with three sets of combs, I made the extracted bees feed the comb-honey bees. In this case I don't wait for the section bees to fill the combs to winter on, but put the sections on earlier, and not have the combs above them—just sections with the honey-board on top of the sections, queen below the zinc in the lower story. Give them all the sections they can fill, to the very last of the honey season; then take off all the sections and zinc queen-excluder; put on a second story, and fill it with full combs of honey from the third stories of the extracted bees. This plan gave the most section honey: but they are more liable to swarm.

Bees could be worked on this last plan, and then give them a set of empty combs, and feed sugar syrup for winter feed. But for me I like the honey best. I was forced to feed my bees 14 barrels of sugar in the fall of 1892, and that winter I lost 160 colonies of bees—a greater mortality than any year before or since.

Now, I don't know but the comb-honey will laugh at me, or at my way to get comb honey; but I don't know any better. Remember that location makes all the difference you can imagine. What is best in one place would be folly in another.

Platteville, Feb. 27.

BEE-KEEPING IN THE TROPICS.

SOME INTERESTING ITEMS RELATIVE TO BEES
IN GUIANA, ETC.

By Thomas B. Blow.

Dear Friend Root:—I wrote you some months ago that I was going to take a complete change this winter, ill health having been troubling me much for the past year; and I said that, if I saw any thing of interest in the West Indies or elsewhere, I would write you. You very kindly sent me letters of introduction to all the people you knew in that part of the world. I received these at Trinidad, and you have my heartfelt thanks. I was, however, prevented from going to the larger islands, where those bee-keepers lived. My route was to British Guiana via Madeira from London, and I found that very little bee-keeping was carried on there—none commercially. There are two or three bee-keepers in Georgetown, with small apiaries, and their bees are kept in rough boxes or rough hives, with American frames. There appears to be a moderate yield of honey; but owing to the great equality of the climate the year round (the variation not amounting to more than 10 degrees of temperature) there is nothing in the shape of a harvest as we understand it. The bees I saw were all descendants of imported bees, and greatly resembled Carnio-

lans. There is a wild bee here of the genus *Apis* (about half the size of *Apis mellifica*), stray swarms of which often take possession of an empty box in an apiary. They, however, yield but little honey, and are few in numbers compared with a colony of common bees. After seeing some of the sugar-factories here (for sugar is the greatest industry here, though at present in a very bad way owing to the great competition with German beet sugar, many of the estates being abandoned; for, though they are in a high state of cultivation, and some have upwards of \$500,000 worth of machinery in the factories, yet they are quite unvaluable), I proceeded to see the gold-mines, which are becoming quite a great industry. They are, however, rather remote from civilization, the nearest being between 200 and 300 miles up the Essequibo River and its tributaries, most of the ground they occupy being part of the territory so long in dispute between Great Britain and Venezuela. The only way to reach them is by open boat rowed by (or, rather, paddled by) about twenty colored men; and as a great many rapids and falls are encountered, it takes about seven days to accomplish the journey. Each day, when we halted the boat for the midday rest, I went into the bush as far as possible, to see what bees I could find. There were great numbers of the small stingless bees (*M. trigona*) that store their honey in little bladder-like receptacles; and at one place I noticed quite a number of bees, pollen-laden, at a creek, taking water. They much resembled Carniolans, but were fully a third larger, and much more hairy. I was sorry that time did not allow me to trace them to their nest. This journey, botanically, was most interesting: for at the rapids, which are the only parts of the river that support any vegetation at all, I was able, during the time the boat was being drawn up, or portages made, to study the habits of about three species of *Podostomaceæ*, of which very little is known.

Altogether this journey was a great treat. The camping at night, our hammocks swung between the trees, and the numerous campfires, with the men cooking their evening meal, was something quite new to me.

Leaving the South-American mainland, Trinidad was the next point of call; and, though so beautifully written about by Charles Kingsley, in "At Last," yet I somehow failed to appreciate it, and I was rather glad, at the end of 12 days, to make ready to depart. There are a few bees kept near the town, and quite a lot in Maraval, on the Mocha estate there. Their owner is Mr. Watkins, who hails from near Hereford, England, and I had a real good time with him. Mr. Hart, the government botanist, keeps a colony of the stingless bees (*trigona*) near the door of his laboratory; and he told me that at dusk each evening the entrance of the hive was sealed up by the bees to prevent intruders entering during the night. Granada,

St. Vincent, St. Lucia, Martinique, Antigua, Nevis, St. Kitts, and Redonda, were visited; but the last and most interesting was Montserrat. I was here enabled to make an interesting observation as to the quantity of beeswax produced in a given area. The island is quite a small one—30,000 acres—with a population of 9000. Bees are kept to some extent, but I imagine a quantity of the wax is got from the wild bees in the forests on the mountains. I had the good fortune to be provided with a letter of introduction to a gentleman who is practically the sole buyer of all the beeswax that is exported. The whole appears to be brought to him with the exception, perhaps, of a little that the chemist gets for local use. The average quantity is about 1120 lbs. per annum, or about 1 lb. to every 27 acres. This island is in a better position than any other I visited, for the production of comb honey, owing to the vast plantations of limes, the property of the Sturgis Montserrat Lime-juice Co. The honey is very superior, being much like the South-European orange-bloom honey, and commands quite a high price locally—about 5 cts. per lb., being put up in empty whisky-bottles, which, I compute, hold about $2\frac{1}{2}$ lbs. each. The surplus honey finds a ready market in Trinidad.

I here found my time was exhausted, and was hence obliged to give up any extended visit to Cuba, Hayti, and Jamaica, which, of course, are the great bee-keeping islands, and I am writing this at Barbadoes, on my way home.

[I will explain to our readers, that Mr. Blow is one of the leading-supply dealers in England. He has traveled extensively throughout Continental Europe, and to some extent in the United States.—ED.]

JELLY-FISH.

AN INTERESTING DESCRIPTION OF THEM

By J. W. Buel.

The *Discophera* (disk-bearers), such as jelly-fish, sea-nettle, etc., are a very numerous, attractive, and (under some circumstances) troublesome community in the waters of the ocean. They seem restricted to no temperature or clime. They exhibit the most infinite variation in size, form, and color. Many of them add to their personal charms the phosphorescence which is so charming a feature of evenings at the sea-side. Their delicate tissues assume all imaginable forms, and rival the magic of the kaleidoscope. The arms proceed from beneath the umbrella-like disk, and resemble the four posts of some grotesque arbor. The mouth, when existing, is placed in the lower wall of the disk, and is furnished with tentacles. A common species has a multitude of filamentary tentacles which resemble a fringe dropped from the seat of a chair; these it entwines about any object of contact. As each one of them is endowed

with the ability to sting, it can make its presence felt, and its memory a "possession for ever." One species is frequently two feet in diameter, and moves about in schools, or shoals, which oftentimes are sufficient to interfere with the progress of boats. Iridescent in the sunlight and phosphorescent in the twilight and darkness, their course is a path of light.

The jelly-fish is the glass-umbrella of the sea, and in place of the handle are numerous delicate filamentary tentacles. By the contraction and expansion of the muscular umbrella-like body, the creature makes its way through the water. Its tentacles, however, contain a sting and a poison-cell, so that, while admiring its beauty, one must remember the maxim, "Do not touch me."

All animals' bodies are partially water; but the jelly-fish contains only about thirty grains of solid matter out of a possible ten pounds of weight. Many a person who has admired the beauty of the floating jelly-fish has been surprised to find it almost vanish after it had been caught. A story is told of a thrifty farmer who collected loads of jelly-fish, thinking to fertilize his land therewith, but found that he had rather discovered a new method of salt-water irrigation.

DRUGS FOR FOUL BROOD.

WHY THE OPPOSITION TO THE DRUG METHOD.

By F. L. Thompson.

At various times in the past you have said that you took no stock in drugs for the cure of foul brood. I differ with you, if you meant that drugs never cured foul brood. We have had cases enough, with three different drugs, to prove that they do. Cheshire and others (among them one of our county inspectors) have succeeded in curing foul brood with carbolic acid; Ed. Bertrand cured 37 colonies with salicylic acid; and others in Switzerland have recently succeeded with formic acid. In the face of such evidence we are justified in simply disregarding the assertion which Mr. McEvoy and others make, that foul brood can not be cured with drugs.

But it seems a little singular to me that energy should be wasted in these fruitless assertions when there is another evident loop-hole by which the drug cure (for that is the proper term) can be attacked; namely, its great slowness. Even lysol, for which so much is claimed, took three weeks to effect a cure. Now, if one man's sick colonies were all he had to look out for, the drug cure would be the thing, though it needs skill and thoroughness, as many have failed with it; but when there is danger that not only his remaining healthy colonies, but also his neighbors' bees, will be infected, while he is putting over his drug cure, it is evident that we, as a community of bee-keep-

ers, can not allow it. There is nothing better than the old way of inspectors and transferring, or possibly the Baldridge method as amended in the August *Review*.

But where I am criticising you, Mr. Editor (and nearly every writer on the subject, for that matter), is right here: Here are all these drugs, of such proven efficacy in their relation to *Bacillus alvei* that they will stamp it out, even when it has accumulated in such proportions as to cause the death of the brood; and, on the other hand, there is foul brood itself; and no one who has not been through the mill can realize what a disagreeable job it is to deal with, not to speak of the loss. Is there not the strongest kind of presumption that some one of the drugs mentioned can and ought to be used as a preventive by bee-keepers who are anywhere near foul brood, and that every contribution to drugs as cures ought to be eagerly welcomed, whether slow or not, for the good it may do in prevention? Our wise shakes of the head ought to be reserved for the impractical method of relying on drugs, without transferring, after the disease has obtained a foothold.

So much for *a priori* grounds. Are there any *a posteriori*? Yes, and good ones, though not extensive as yet. I have not at hand the number of the *Progressive* (page 76, 1894) which contains what I refer to; but the following is Mr. Hasty's comment: "D. L. Tracy, of Denver, makes a success of preventing foul brood by the use of dilute carbolic acid. For four years neighbors all around had it badly, and he escaped. He merely sprinkled heavily the tops of the frames three times each breeding season. Formula: Carbolic acid :1; salt: 3; water 296. (One part of carbolic acid to 300 of water, and a level tablespoonful of salt to every pint of the mixture is an easier way to remember it.) Easy enough to try. But don't put on fire-proof paint as a preventive after your building is all ablaze at one end. That's about the way half the boys would do—if they did any thing." But that last statement should not be construed to indicate that preventives should not be made known for fear they would be taken as cures. The rest of us ought not to suffer, even if some men are fools.

The first year I began bee-keeping I had to transfer all I had—20 colonies—on account of foul brood. Being a novice, and pressed with other work, my colonies were so weakened that they took until the fall of the second year to build up; and the second spring after, the spring count was 7 to show for the original 20. A knowledge of a preventive, and a sense of the desirability of using it (which the bee-papers do not give) at the time I bought my bees, would have saved me \$100 at the least. It is a terrible mistake, sometimes, to be too cautious, when nothing would be lost by venturing.

Let us admit that a colony in full robbing career would contract the disease anyhow, pre-

ventives or no preventives; still, the evidence that the preventives would make a great difference in the degree to which that colony would be afflicted is strong. Compare Mr. R. L. Taylor's occasional plan of holding the dread disease in check by the use of medicated feed until the close of the season—not that such a procedure is to be recommended; but for evidence, it is just what we want. But in the majority of cases it is probable that the disease does not begin by excessive robbing. A taste here and there, and a bee entering the wrong hive occasionally, are mainly what we have to look out for, and are precisely the conditions which we have very strong reasons to suppose would be rendered harmless by those drugs which have been able to effect cures.

Mr. Adams, the inspector for Boulder County, who constantly uses and recommends the formula referred to, and can furnish other evidence besides what I have given, spoke of it at the meeting of the State Association last April, but said plainly that he did not recommend it as a cure. After learning about it I told a near neighbor, who had about 250 colonies among which he had discovered two cases of foul brood shortly before, that I would apply the method to the rest if he would furnish the materials. He agreed, and I did so. Neither his bees nor mine showed a trace of the disease last season. Perhaps they would not have done so anyway; but who knows? I do know this, though; that, if the disease had spread among those 250 colonies with the same rapidity that it did among my 20, the labor, the loss, and the vexation would have been enormous.

Another use of drugs, and an important one, is in treating colonies *after they have been transferred*. That is the very time when, if by any hook or crook, a drop of foul-broody honey should be left exposed, they would be apt to get it; and such treatment is especially desirable when, for any reason, the remaining colonies have to be transferred during the day, instead of in the evening—and that is quite often the case—when there are many to attend to. Experience soon shows that the assumption, that more than a very, very few colonies can be properly transferred by one or two persons, after the bees have stopped flying and before it gets dark, is fallacious. Robber-bees fly as late as they can see, anyhow; and the average bee-keeper can not muster a gang of men for this business, even if he could afford it. Here is where the Baldridge method, if approved will be a boon indeed. I transferred most of mine during the day (after a few frantic and unsuccessful attempts to do it up in the evening), and fed a part of them with medicated honey, after boiling. At this time the bees had begun to show a slight propensity to rob, the main flow being over. If I had to do it again I would sprinkle the hives of all after transferring, and give medicated food to all. The next

spring but two colonies showed slight indications of foul brood, and were again transferred. If I had known of drugs as a preventive, perhaps not even that much would have reappeared.

"An ounce of prevention is worth a ton of cure," said one of our Denver bee-keepers, referring to foul brood; and every one who has had it among his bees will say amen. The question becomes doubly important when we reflect that, as Mr. Getaz suggests, whatever cures foul brood will probably cure paralysis, and therefore prevent it. No, sir; we can not go back on drugs yet. I move that the bee-papers change their attitude in this respect.

Arvada, Colo., Mar. 4.

[I sincerely wish there were a reliable drug cure; and I shall be only too glad if such has been found.

I believe I never said that carbolic and salicylic acid would not cure; but the former, at least, seemed to do no good in our case. I tried (or, rather, a college friend for me) carbolic acid diluted according to Cheshire. A quantity of this mixture was introduced into test-tubes containing pure cultures (i. e., the growing germs of foul brood in beef-gelatine). Did it kill them? Not at all.

Every one, so far as I know, has been successful with the mere starvation (or foundation and clean hive) plan; but very few by the drug plan; hence I have recommended the former.

I am not opposed to the drugs, and I sincerely hope that the time will come when we all shall be able to use them with satisfaction, because it will be far cheaper. Perhaps you will be interested in the following very readable article from Mr. Gravenhorst; but don't forget to note that he says foul brood will go off many times of itself. If he is correct, and I think he is, it is easy to explain some of the drug cures.—ED.]

LYSOL.

ITS USE AS A CURE FOR FOUL BROOD; CRUDE CARBOLIC ACID PREFERRED TO THE REFINED.

By C. J. H. Gravenhorst.

Referring to a report from Germany, where a Mr. Fulde has cured foul brood by means of a new disinfectant, lysol, Dr. C. D. Miller asked in GLEANINGS, page 88. "What's lysol? and will it work as well in the English language as in the German?" The editor remarks thereon: "I should be interested, also, in knowing whether the disease stayed away. Perhaps Mr. Gravenhorst will answer the question."

Yes, I will answer the question according to the best information I can get. I have not tried lysol, because I did not know of it before September of last year.

The new disinfectant has been manufactured for a few years by Schülke & Mayr, at Hamburg, Germany. They produced it from coal-tar. It has a brown color, and smells like tar. In Germany it is to be had in every drugstore, and perhaps in America also. Mr. Fulde purchased a bottle of lysol for 2½ cents, and therewith cured his bees, which were badly infected

with foul brood. He took ten pounds of sugar-syrup, boiled and skimmed it, and mixed it up with 24 drops of lysol and 4 drops of carbolic acid. He gave a colony a soup-plate full of this food. After three days he found the sick larvae dry in their cells, and in a lapse of three weeks not a trace of foul brood was to be found in his colonies. They were sound, and did swarm. Later he has fed lysol in the same way, particularly in the spring, to protect his bees against foul brood. He never saw a trace of it again.

That's all I know about lysol. I hope some of the German and American bee-keepers will try the new disinfectant. It would be a great benefit to bee-keeping if lysol should prove to be a remedy for such a rapidly spreading disease as foul brood. Then it would be a trifle for every one to cure the malady himself. However, I confess that I do not have such confidence in lysol as Mr. Fulde has. Experienced bee-keepers in Germany, and I myself, too, are of the opinion that the disease will disappear, oftentimes, without any cure other than a good honey-flow, when good sound honey is coming in, and that most of the remedies tried in such cases did not cure foul brood at all. The good honey-flow only, did it, nothing more. Hundreds of remedies have been recommended, but, when tried, they would not work as was claimed. May be that, in one or the other case, the remedy was not used as it should have been; but I think most of the recommended remedies are worthless, and rest upon illusion.

On account of the importance of the matter, it may not be out of the way to report concerning a disinfectant that I have used nearly twenty years, with such results, that, for my part, I hold the foul brood question as fully solved. I have had to fight hard against foul brood, as I resided in Brunswick, and, later, here in Wilsack; but I have never lost one colony by it. I had to guard my apiaries against neighboring bees infected with foul brood, in apiaries only a thousand paces, or less than half a mile, distant. Well, it was a very bad position for myself; but I have fought it out. In a few cases, where the neighboring apiaries were lost by foul brood, I have found in some of my hives slight traces of the disease. However, they disappeared swiftly by my treatment. I used, and have used till to-day, although I have not at present any apiaries near by that are infected with foul brood, carbolic acid—not the refined article you get at the drugstore in the shape of white crystals, but black and unrefined carbolic acid, which is intermingled with coal-tar, and mostly used as paint. Refined carbolic acid is too strong, and the sanative power of the tar is absent in it. I am of the opinion that just the tar, in connection with the carbolic acid, has much to do in the cure of foul brood, as Dr. Preuss said. He was the first bee-keeper who studied foul brood. This opinion is confirmed by

another prominent German bee-keeper, Mr. Schroeder, at Frankfort-on-Main, who has mixed up refined carbolic acid half and half with coal tar, and thus cured foul brood. I, however, prefer the unrefined carbolic acid, not this mixture. Although among foul-brood-infected apiaries at Brunswick, I have never lost a colony by this disease; yes, and I have cured the foul-broody apiaries of my neighbors, except one, which was a total loss, as the owner was careless and did not follow my directions. I bought his hives and combs, disinfected them, and used them without harm to my bees. All the bee-keepers who followed my directions strictly, succeeded in getting rid of the disease.

To guard my bees against infection by foul brood. I take $\frac{1}{4}$ gallon rain water, add to it a teaspoonful of unrefined carbolic acid, and stir it. With a brush, dipped in this solution, I wash the bottom-boards every spring, after the first cleansing flight. By doing this I destroy not only the germs of foul brood, but also the eggs of bee-lice and wax-moth which may be there. In badly infected apiaries, I found now now and then some traces of foul brood in some of my colonies. Then I applied such a washing every eight days. The steam of this solution disinfected the bees, the food, and the cells. Now and then I examine the brood-combs of a suspicious colony, and when I see that there are many empty cells which I had seen some eight days before filled with eggs or larvae, I am sure I have before me the first traces of foul brood. The bees, in helping themselves, had borne out the dead larvae. Then, among the capped brood are to be seen many empty cells. Should I find, besides this, some sunken cells, and, after opening them, that brownish, tough matter in them, I spray such combs besides washing the bottom-boards by means of a "refraicheur," with a warm solution of four or five drops of my carbolic acid to a teacup of water, thoroughly mixed up in a bottle. This does no harm to the open or sealed brood. Besides this treatment I feed now and then such infected colonies with sugar syrup and add to a teacupful of the food three or four drops of my carbolic acid.

Colonies badly infected with foul brood I treat in the following manner: At a time when the bees will build comb I brush them upon starters in clean hives, wash the bottom-boards, and feed the bees with those solutions of food I have mentioned above. I have found out that starters are better than foundations. I give only four or five frames with starters according to the size of the swarm; and later, before the combs are finished; and, further, only foundations. The combs of the colonies I render part in' wax and part are disinfected. Out of some of the badly infected colonies I hunt the queen. When all the brood is emerged from the sound cells, I brush also the bees upon starters; or if the bees do not build combs, from want of a honey-flow, upon comb foundation or disinfected

combs. Later in the season, when comb-building is out of the question, I unqueen the colonies and unite the bees, after all brood is emerged, with those I had brushed upon starters. Then the combs are disinfected. This I do in the following manner: At first I uncaps the cells, then I lay one frame after the other in a vessel filled with a solution such as I use for washing —perhaps a little stronger. The comb floats on the solution. Now I take a hand-syringe and squirt the solution with all my force into the cells to fill them, first on one side, then on the other. This is necessary, as otherwise the cells will not be filled to the bottom; the foul-broody matter will not give way, and the solution will not penetrate it. If all cells on both sides are well filled, then I extract the solution by means of an extractor, or by jerking the combs, and then hang them up to dry. After from eight to fourteen days in the open air, when they do not smell any more of carbolic acid, I use them as I would any other good combs.

The infected hives were also washed inward thoroughly with the washing solution, and, after laying two or three weeks in the open air, were used as new ones.

I am so very cautious in this matter that I wash the inside of every hive in the spring, except the new ones, with my disinfectant, before I put in a new colony. I need not say that all the tools used by infected colonies must be disinfected; also, that one must wash his hands after he has had to do with infected bees.

I know, however, that American bee-keepers do not have much confidence in the carbolic-acid cure of foul brood; but it is a question whether they treated their sick colonies with a remedy that is composed of and used in my way.

If it is true, what Fulde says about lysol, and if he is not misled, as are so many others who recommend foul-brood remedies, then lysol will surpass the unrefined carbolic acid as a disinfectant for foul brood, especially as it is employed with less labor and cost. On the other hand, if lysol does not prove to be such a remedy as is claimed, then I will use the unrefined carbolic acid in my way, as I have done till now, which has saved me from any loss by foul brood under dangerous circumstances.

Lysol consists of cresylic acid made soluble in water by a patented process, by means of saponification. It is a powerful disinfectant and antiseptic, and is largely in use in the hospitals of the Old World as a substitute for the less active but highly poisonous carbolic acid. It is further much employed in horticulture, where it has proved, in weak solutions, a very active remedy against vermin and parasites of all kinds. It is manufactured by Schülke & Mayr, Hamburg, and sold by their general agents for the United States, Lehn & Fink, 128 William Street, New York. It is put up in 1-lb. bottles, at 60 cents.

Wilsack, Germany, March 9, 1895.

BEE-KEEPING IN CUBA.

60,000 LBS. HONEY PER YEAR, AND LOOKING TOWARD A QUARTER OF A MILLION; FOUL BROOD IN CUBA INCURABLE.

By W. W. Somerford.

Mr. Root:—In your footnote, Jan. 15, to Mr. Fred L. Craycraft's letter from Cuba, you say some of your readers would perhaps like to view some pictures of Cuban shed or house apiaries.

No. 1 is a picture of a part of the main shed that covers Mr. A. W. Osburn's 700 hives that

with his record-book of queens, for he believes in keeping up with them closely, and breeding queens only that "give results" in the way of honey-gathering. Hanging from the plate of the shed you will see scores of Miller feeders, which are used to advantage during the rainy season only. His honey-carts you will also see in the main alley between the rows of hives. The eaves of the shed come down so near the ground, and guava-bushes grow up so thick and close, that bees hardly ever sting a person while working under the roof, and are not much inclined to rob. You may ask why the bush-



FIG. 1.—A SHEDDED APIARY IN CUBA; A. W. OSBURN IN THE FOREGROUND.

are all under one roof—twelve miles west of Havana, near the little town of Puntabrava. Fully 17,000 square feet of tile and corrugated iron roofing is required to cover the apiary, one main shed running straight up the hill 300 ft., crossed by two others of about the same length, all opening into or joining the main shed, thus making all conveniently situated up the hill from the honey-house and that big steam honey-extractor.

Mr. Osburn uses a honey-cart that holds 75 or more combs at a time, and it is a downhill pull to his honey-house; so, hauling in his tons of honey is only fun for his son Harry, who is an expert in all the branches of the industry, having been raised from childhood in an apiary, and continually among the bees, for his father has for years been one of the largest honey-producers on the island, or anywhere else, for that matter. His average crop is about 60,000 lbs. annually, which he intends, if honey goes *much lower*, to increase to a "quarter of a million" per annum.

You can, as usual, see Mr. O. at his desk,

es are not cut away. Because they save honey, or the consumption of honey, by keeping the bees quiet during the long hot summer days, which is very essential in hot climates; for hives well shaded will have plenty of stores, while those in the sun will be starving.

Picture No. 2 is an interior view of the Casanova apiary, situated 21 miles east of Havana, and at present in charge of my brother, Fred O. Somerford, who has resided in Cuba over four years, continually among the bees, and has had, I presume, as much experience with foul brood as any one during the past four years, never being without it, scarcely, during the whole time. He, like Mr. Taylor, has concluded that it can be transmitted by foundation made of foul-brood combs.

Mr. A. W. Osburn, who has had varied experiences with the disease in California as well as in Cuba, thinks, like myself, that foul brood in a hot climate, and in large apiaries, is something too progressive for any remedy yet known to the fraternity. I have, after reading all the fossil works on the subject, and experimenting

for three years with various remedies, such as phenol, starvation, melting up all combs, scalding hives, killing queens, caging all queens 21 days to stop breeding for a time, while new combs were being built out, come to the conclusion that a new and more effectual remedy will have to come along before much foul brood in the tropics is eradicated except by total annihilation, which surely follows if the disease is not checked each year by melting all combs and putting the bees on new foundation.

I have lost 250 colonies by the disease—worth in Cuba not less than \$1000, and all my neigh-

never uses German script, but plain English letters, so his writing is read as easily as the printed page. But here's his letter, which loses by the translation:

My experience agrees with yours in the matters you mention, except the case in which you saw a queen kill a worker. To balance that, I once had a young queen sting me, which I had taken out of an after-swarm, and held in my closed hand. The sting did not remain in the flesh, and it was less painful than that of a worker. Since then I have had in my hand thousands of queens young and old, but have never again been stung by one.



FIG. 2.—CASANOVA APIARY, CUBA.

bors around have shared my fate, or their bees have.

Navasota, Tex. (at present).

BEE-KEEPERS' ASSOCIATIONS IN GERMANY.

WHY THEIR MEMBERSHIPS ARE SO LARGE.

By Dr. C. C. Miller.

I have a letter which I esteem very highly, not only because it clears up a matter concerning which I have for a long time been curious—the reason why the Germans have such large bee-conventions—but also because it comes from one whom I am proud to number among my friends, the able editor of the *Deutsche Illustrirte Bienenzitung* (German Illustrated Bee Journal), who is already well known to the readers of GLEANINGS through his contributions to its pages. I wish I could show to all of you his writing. Although past his threescore and ten, the address on the envelope would easily be taken for copper-plate. Although his letters are in the German language, in pity for my lack of familiarity therewith he

I have read in GLEANINGS for January 1 your statement concerning the number of members of the German Central Association, as also the remark of Ernest Root. Now I will impart to you the secret why it happens that the Centralverein (Central Association) has such a large membership, and if you wish you can betray the secret to Ernest.

In thickly populated Germany there are ministers and teachers who form about them little Vereine (societies or associations) whose members generally meet monthly or quarterly. Every one who has bees, even if only a couple of colonies, allows himself to be enrolled, without attending each meeting that is appointed. These small Vereine obtain at a very low price one of the reasonable bee-journals, as the *Centralblatt* or *Leipziger Bienenzitung* for 1 mark (25c), or 65 pfennig (about 13c) a year. Many of these small Vereine have their own bee-journals, which then cost more, but never more than 50 cents. These small Vereine (Special-Vereine) are united to the Centralvereine of the different provinces or small states. For example, in Mark, my province of the kingdom of Prussia, the Markische Centralverein consists of 77 Specialvereine, with 1539 members, who, in the fall of 1894, put into winter quarters 15,000 colonies.

Now comes, however, the principal thing, which

explains all. All the Centralvereine receive a grant or allowance from the government yearly, and all the members share alike in this grant. Whoever is not in a Verein has no share in the money which the government grants yearly. Many of the Centralvereine receive so large an allowance that they deliver to their members one or more bee-journals free.

At the large conventions, where all the Centralvereine come together, extra money comes from the government, and even from private sources, from which premiums are offered, transportation paid on objects for exhibition, and often free railway passage, as well as payment for articles damaged or lost in transit. In Vienna, at the convention which I reported in *GLEANINGS*, it went even so far that the members had their common meals, including wine, *free*. "There's the rub," says Hamlet! Whoever is not a member of a Verein must wipe his mouth—that is, he gets nothing of all this.

I once traveled to a convention of this kind with a man who admitted that he no longer kept bees, but had himself enrolled in a Verein, and paid his dues of 30 cents, for which he received the bee-journal and the opportunity of visiting strange places. In our deliberations at Kiel he took no part, but probably in all the favors, visit to the museum, man-of-war, etc.

Yes, friend Miller, you must set all sail to procure such a cement in your States, which will not only secure many members, but also hold them together.

Freundlich gruessend,

C. J. H. GRAVENHORST.

For one, I feel like giving a vote of thanks for this information. Just the thing we needed. Now, can any thing of the kind be done in this country? The answer has always been that distances are too great and bee-keepers too scattered. Right there is the rock on which we have always split, depending for membership solely on those who could attend the meeting. You will readily see that not all the members attend the German conventions; but the inducements are sufficient to make a man keep up his membership, even if he never attended a single meeting. So while our great distances may count against the largest attendance at conventions, it counts for nothing whatever against a large membership.

The only thing needed, then, to bring us up on a level with Germany, and, for that matter, with Canada, is to get the grant from the public treasury. I think I hear some one say, "Oh! there's no use. We can't get any thing of the kind." How do you know we can't? I feel quite sanguine that there's just as much enterprise here as abroad; and if we go at it in the right way we can get all the help we need. Indeed, something has already been done. The bee-keepers of Illinois succeeded in getting, at least for one year, an appropriation of \$500. It was given to the State society, with the express stipulation that it should be used to spread information—in other words, to publish their report. Good was done by it; but it had very little effect in the direction of increasing membership. Probably a large number had

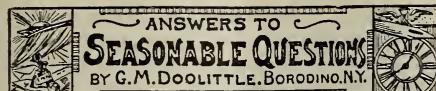
the benefit of the reports who were never members of the society, and, under existing circumstances, never will be. With a large membership it would be much easier to get an appropriation from the State legislature.

Now, suppose the Illinois society receives another grant of \$500; how would it do for them to profit by the example of their foreign brethren? I think it could be so managed as to make the society five or ten times as large, and still keep within the restriction that the money must be used for spreading information. Let's figure. Suppose the society make arrangements to furnish free to its members a bee-journal, and on any one of them it could probably get special rates so that, at the highest, it would pay not more than 80 cents per copy, the journal publishing in full the society's report. Now, suppose the membership-fee be placed at 25 or 50 cents. Does any one doubt that a large number would be induced to join who are not now members, and many who now take no bee-paper would do so by paying to the society less than the regular subscription price of the paper, without saying any thing about the privilege of membership? Let's see how the thing would come out if the annual fee be placed at 25 cents. Allow \$50 to be reserved for expenses, and we have \$450 left. Each member pays in 25 cents, and the society takes that, and 55 cents more, to make out the 80 cents it must pay for his paper. It seems clear that the society can afford to do that just as many times as 55 cents is contained in the \$450. If I figure straight, that would make 818 members. Could not get 818? Well, then it could reduce the fee, making it only 10 cents per member, and take in 642 members. There's a power in numbers, and I believe the thing to work for lies in that direction. The fact that such a thing is done in one State will give strong leverage to work upon the legislature of another State. Don't you believe that, if bee-keepers push as they might, in a few years there might be large societies in each State?

Marengo, Ill.

[We are always glad to get anything from the pen of that practical German bee-keeper and bee-writer, C. J. H. Gravenhorst. If our readers do not know him through his own most excellent journal, they surely do know him to some extent from his writings in our journal.

On account of the magnificent (geographical) distances, I am afraid, as you suggest, we shall never be able to see a complete realization of such a plan as is now in vogue in Germany. Our country is made of so many little countries, and so much has to be done through State appropriations, that it is very difficult to get any thing from the national government to help all bee-keepers alike. Instead of concentrating any great effort on any particular State, I should be more in favor of getting an appropriation, if times ever do get better, from the powers that be, at Washington. A State association, no matter how flourishing, would never be more than a State organization.—ED.]



EARLY SWARMS.

Question.—I am desirous of securing early swarms. Would there be a gain or loss along this line by putting on surplus cases of sections?

Answer.—It might be safe to say that, taking early swarms into consideration, there would be a disadvantage or tendency toward a few days' delay, if the surplus arrangement is put upon the hive before the bees swarm. Heat is one of the elements in forcing early swarms; hence, by putting on the surplus arrangement before the hive is crowded with bees, much of the heat from the colony will be distributed up among the sections, which would retard swarming, as it also does brood-rearing. If early swarms are what we *must* have, even if we have to sacrifice other values, then it is best to keep the top of the hive as close as possible, and stimulate the bees by feeding them or otherwise. Later on, when the hive becomes crowded with bees, and preparations for swarming begun, the placing-on of sections may not delay it. But if we count surplus honey a gain, then I can conceive where there would be a gain in putting on sections as soon as our main honey-harvest opened, as it is often the case that, with all our crowding and desiring early swarms, the bees will obstinately refuse to swarm, when we not only fail to accomplish what we are after, but lose a part or all of the honey crop we might have had if we had put on the sections at the proper time. I verily believe, that, during the past, when conducting experiments along this line, I have sustained more loss by trying to force swarms by crowding the bees than by giving them too much room. Hence my advice of late years has been to place the sections on the hives at the proper time, no matter whether swarming is desired or otherwise, resting assured that, with the majority of bee-keepers, more swarms will issue, when doing our best to secure a good crop of section honey, than we could expect under any conditions, and fully enough to satisfy any reasonable person.

WHEN TO PUT ON SECTIONS.

Question.—When is the proper time to put on sections for surplus?

Answer.—No set time as to month or day can be given for putting on sections in any locality, as all depends on the strength of colony and the time of the opening of the blossoms which give us our main honey crop, both of which are advanced or retarded in accord with the earliness or lateness of the season. Some say, put on all surplus arrangements as soon as the first buds giving our surplus honey are about bursting open, no matter about the strength of the colo-

nies. Others tell us to put on sections as soon as the colonies are strong enough, without any reference to the time of the blooming of the flowers, they saying, "It is a mistake to put off putting on sections till the honey harvest is upon the bees, as they will sometimes waste time looking through the surplus apartment before going to work." I can not agree with either of the above, as it savors too much of the old "luck in bee-keeping" we used to hear so much about, and does not give credit to any apiarist of managing his business intelligently. After years of experimenting, to know just when the sections should be placed upon the hive, I have arrived at this: Wait about putting the sections on till the hive becomes populous with bees and the combs well filled with brood, and till the bees are securing enough honey from the fields to begin to lengthen the cells along the tops of the combs next the top-bars of the frames, or build little bits of comb here and there about the hive. When we see this it is time to put on the sections; for if we delay longer we are sure to lose in time and honey; while if we place sections on the hive, no matter how populous with bees it may be, before any honey is coming in from the fields, we shall lose by the bees gnawing or tearing down more or less of the foundation placed in the sections. If we use only starters of natural comb in our sections, then they can be placed on the hive as soon as the colonies are strong in bees and brood, if we so desire; but even then I can see nothing gained over the other, unless we are liable to be crowded for time at the right time for putting them on. If my memory serves me rightly, Dr. Miller has put forth the claim that it is only after the honey season is over that the bees gnaw holes in and tear down foundation, which may be correct with him in his locality; but with me bees always mutilate foundation in the sections, more or less, at any time of the year when an abundance of numbers, or hot weather, crowds them into the sections at a time when there is no honey coming in. I had scores of sections one season in which all the upper half of the foundation was gnawed away but a little strip or neck about $\frac{1}{2}$ to $\frac{1}{4}$ of an inch in width; and when honey began to come in, and the foundation was worked out, it twisted and turned to such an extent that it was attached to the separators on either side, thus spoiling such sections for market when they came to be removed, as the honey would be set to running in getting the combs loose from the sections.

WHEN TO PUT ON SECTIONS ON NEW SWARMS.

Question.—When is it best to put on sections on a hive having a new swarm?

Answer.—That will depend somewhat on how you work. If your swarm is large, and you have full sheets of foundation in the brood-frames, it is well to place a case of sections (and they should also be filled with foundation)

right on the hive when the swarm is run in; but should you fill the sections with foundation, and use only starters in the brood-frames the queen would be likely to go into the sections to deposit her first eggs unless a queen-excluder were used, in which case she could not get into the sections, no matter how the hive was arranged below. With nothing but starters in the brood-frames, and no queen-excluder used, then it is best to wait about putting on sections till the queen has commenced laying in the new comb built below, when the sections can be put on without fear of brood in them. The plan I consider the best, and the one I use more largely than any other, is, to contract the brood-chamber to two-thirds its usual size, using only frames having starters in them of foundation about half an inch wide, on top of which is placed a queen-excluding honey-board. The new hive thus prepared is set on the stand of the parent colony while the swarm is out, and the sections from the removed hive placed over the queen-excluder on the new, when the swarm is hived in this new hive on the old stand, when the old or parent colony is placed at some distance away on a new stand which we wish it to occupy. In this way work does not stop in the sections at all, and we, as a rule, get the frames in the contracted brood-chamber filled with nice straight worker combs, at a less cost to us than the purchasing of foundation and fitting it into wired frames.



THE DIVISIBLE-BROOD-CHAMBER HIVE.

THE PRINCIPLES OF THE HEDDON HIVE SET FORTH BY AN ADMIRER OF HIS SYSTEM.

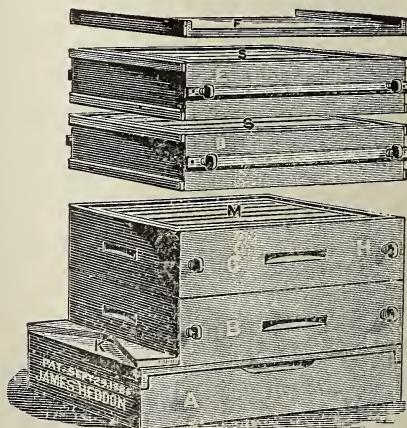
By Honey Producer.

In all the arts with which we have to do, there are certain governing principles or laws peculiar to each, with which we have to comply if we wish to accomplish a certain definite result; and, reasoning at least from analogy, honey-production and hive-construction should be, and are, no exception to the rule. However, as with the farmer, so also with the bee-keeper, there are climatic and other conditions or principles over which he has no control, and which affect the obtaining of the object he has in view, thus giving varying results, no matter how correctly and effectively he has applied those which he can control.

The honey-producer applies the principles of his art largely through his hive, which fact shows its important relation to the cost of his product. Like other producers, his first object

is to obtain his product at the least cost possible. Where this is accomplished, his hive will be so constructed, and its manipulation such that he applies the principles of his art to each individual colony, 1, with the greatest effectiveness; and, 2, with the least expenditure of labor. However, be our hive construction and manipulation never so good, we can not force the productiveness of any colony beyond the limit of its ability, nor, on the other hand, lessen the labor of manipulation beyond the point of profitable effectiveness. We see, therefore, that, in order to be the most effective, these two elements must be made as weighty as possible, and so adjusted in our hive that it will exactly balance upon its fulcrum, honey-production.

It must also be remembered that the natural principles which govern the development of the honey gathering and storing instinct of our bees can not be changed, but that the methods of applying them can, and that they either hinder or help the effectiveness of these principles. That the sectional hive and system, from which we can not with justice separate the name of James Heddon, its inventor and patentee, requires, in practically applying principles, the least known amount of labor, does not seem to have been generally disputed, except by some who, for some cause, have been troubled with brace-combs between the sections; but that it is also pre-eminently adapted to the *most effective* application of these same principles to the colony it contains, and hence to the securing of the *greatest* amount of honey from each individual colony, is ignored by a few, disputed by some, doubted by others, and entirely overlooked by many.



The cut is a good representation of this hive. *A* is the stand, *K* the loose bottom-board and two loose entrance-blocks; *B* and *H* are shallow brood-cases, one or more of which are used for a brood-chamber. Each is of five Langstroth-frame comb capacity, and contains eight shallow combs in close-fitting end-frames, which

also closely fit their case endwise, and are supported on tin rests, and held tightly together and securely in position by a thumbscrew at either end, which arrangement allows the cases to be handled in any position as one solid whole, and yet, by loosening the thumbscrews, it leaves the frames readily removable. *M* should be the queen and brace-comb excluder, but is not shown and is generally wrongly named "honey-board." *D* and *E* are wide-frame surplus-cases for comb honey. These have the same kind of frame adjustment as the brood-cases which are used for surplus-cases when extracted honey is wanted. *F* is the cover. Besides, there is the escape and board which are not shown, and without which the hive is incomplete, although not a part of the invention. Each brood-case, outside measure, is $1\frac{1}{2}$ inches long, by 13 inches wide, and $5\frac{1}{2}$ inches deep. The wide-frame surplus-cases are the same length and breadth, but only $5\frac{1}{16}$ inches deep. Considering, now, the size, shape, lightness, and construction of the parts, you will see how admirably adapted it is to its system of case (sometimes called hive) manipulation, no matter whether of the brood or surplus apartments, or these as used in connection with each other or any of the other parts of the hive, or of the hive as a whole, and for which it is intended and expressly built.

When left to themselves, and under natural conditions, bees will store a little of their honey about the sides of their brood-nest; but the great bulk of it will be above. Besides, they store it as near the top of their hive as possible, and for consumption use that lowest down and nearest the brood. In breeding, the upper part of the brood-nest is kept immediately next to the honey. When the upper brood hatches, and the honey-flow is sufficient, the bees will fill with honey the cells out of which it hatched, thus continually working to connect the brood and honey by filling with honey the shallow space continually being created between them. From these natural conditions we learn some important principles as they relate to a hive's construction and its manipulation.

1. That surplus cases should be added above the brood-nest, and hence our hives built for top storage.

2. That we should not compel our bees to travel over honey at the top of the brood-nest in order to store their honey, and hence the division between the surplus-apartment of our hives and the brood-chamber should come right where the brood and honey meet. In other words, the construction of our hives, and management, should be such that there will be no honey, or as little as practicable, at the top of the brood-chamber when we wish the bees to store in the surplus-cases above it.

3. That brood should extend under the whole bottom surface of the surplus-cases; hence surplus-cases should not extend endwise or side-wise beyond the brood-chamber; neither should

there be combs of honey beneath them, at the sides of the brood-chamber. It is a fact, that a brood-chamber of sufficient capacity, and more than eight combs wide, is quite liable to have its outside combs filled with honey; hence a brood-chamber should not be more than eight combs wide.

4. From principles two and three, we see that any hive or system which attempts to fill the brood-chamber with honey for winter stores, either before or while the honey-harvest is on, does so at the expense of important conditions necessary to the development of the strongest honey gathering and storing instinct of the bees.

5. That when one or more surplus-cases have been filled sufficiently to justify the addition of another, it should be placed right between the brood and honey already stored, and, as might also be inferred, and which experiment proves true, the shallower the opening which we make for storage between the brood and the honey already stored, the stronger the instinct of the bees to fill it. It is also much better that the first surplus-case which is put on be shallow rather than deep, and of large capacity.

6. A little reflection shows, and experience proves it true, that the deeper the brood-chamber the greater the liability to have honey stored at the top of it by the bees, which they will have to traverse to store honey in the surplus-cases, greatly lessening their energy.

7. A little mathematical calculation shows, too, that, the deeper the brood-chamber, the less surface there can be above it for top storage, and hence the deeper will the surplus-cases have to be in order to have sufficient capacity, in adding which the deeper will be the opening made between the brood and honey, thereby again lessening the instinct of our bees to fill this space *promptly*.

8. It is a fact that, when a brood-chamber is larger than a queen can keep filled with brood, the remaining space will be filled with honey. We at once see, therefore, that such is a mistake, where we wish a brood-chamber filled with brood, and devoid of honey.

You will now look at the cut, carefully study the hive, its shape, construction, and size of the different parts, and connect therewith the following manipulation, and carefully compare any and all of its bearings with the above principles.

Suppose our colonies are in normal condition, and ready for the surplus-cases at the opening of the summer honey-flow. When we put on the first case we will interchange the two brood-cases—that is, place the upper one below and the lower one above, and then put on the honey-board and surplus-case. When this shallow case is sufficiently filled, we will add another on top of the honey-board and beneath it, and so on with others as required upon the tiering-up plan. You will notice now, 1. that the brood-nest is flat on top instead of rounding;

2, the brood extends to the very top of the brood-chamber; 3, that the brood-nest was divided where it was largest across, and thereby the brood was, so to speak, spread out underneath the surplus-cases; 4, that placing the honey where the bees want brood, induces them to remove it and put brood in its place, thus filling the brood-chamber with brood; 5, that, in adding surplus-cases, we continually create a shallow opening between the brood and honey stored.

The swarms we hive in one brood-case; place them upon the stand of the parent colony, and give them the unfinished surplus from the same, and add an empty case, if needed. From this arrangement of the hive, you will notice the following conditions which now exist: 1, the brood-chamber will be filled with brood, because of its small capacity; 2, brood will extend to the top bars, because of its shallowness; 3, when filled with brood, it will extend under the whole bottom surface of the surplus-cases; 4, the whole body or bulk of the brood is nearer to the surplus-cases than it can be brought by any method of narrowing the brood-chamber to contract it; and, also, the bees are in a more compact form to work; 5, that a shallow opening between the honey stored and the brood-chamber is established for storage.

In my opinion, with no other hive or system that I know of can all the principles of honey-production, as mentioned, be so easily and perfectly applied to our colonies, either before or after swarming. "But," says some one, "there are other things to be taken into consideration if we are to be successful." True; but can the most indulgent of editors be expected to permit the space?

Just as I finished this article, GLEANINGS came to hand; and you may guess of my surprise upon finding another claiming nearly all of the essential features of Mr. Heddon's hive and system. However, it is a pretty late day to succeed in this kind of work.

[As there are some who think the divisible-brood-chamber hive is the coming system, I have asked one of them (a user of the Heddon, and one who thinks there is nothing like it) to write it up for the Trade Notes department, and this he has done in the foregoing. Along in the same mail came, unsolicited, an article from Ezra G. Smith, also an admirer of the Heddon hive. He writes of it as follows:]

I want to say something about Heddon's hive. You say in GLEANINGS, Mar. 15, that two-story Langstroth hives were used years ago. That is so; they were used, but not as divisible brood-chambers. We had no way to restrict the queen. It was intended and advertised, sold, and used as a single-brood-chamber hive. When the queen went above, it was not because we wanted her to do that, but because we could not help it. I have used the Quinby, Langstroth (Hoffman frame) hives; have used the Heddon hive five or six years; and if I

had to go back to the other hive I would quit the business. I can take care of my bees with one-half the work that I formerly had to lay out on them. I think the Heddon hive is as much ahead of the other hives as those hives are ahead of the old box hive.

EZRA G. SMITH.

Manchester, N. Y., Mar. 19.

[I shall endeavor, so far as it is possible, to make the Trade Notes department represent fairly the views of our subscribers along the line of practical bee-hive construction. While I understand that there are some who like the Heddon system, I am also told that there are others who have tried it and abandoned it. Now let us hear from these latter, and wherein the multiple chamber is not a success.

I am not seeking this information pro and con because we desire, or may desire, to go into the extensive manufacture of Heddon's hive under royalty, but only to get at the truth. It is true we did write to Mr. Heddon, asking royalty price per hive; but it was only that we might be in a position to supply such hives, in a limited way, when ordered, and not that we considered it the best hive, as Mr. Heddon seems to think. At present we are satisfied with what is common property, viz., the Langstroth system. On the other hand, we shall endeavor to hold ourselves open to intelligent conviction.—ED.]



CATNIP HONEY, A BARREL OR MORE.

In 1892 one extracting, of 500 to 700 lbs., was either pure catnip or else so strongly impregnated with that flavor that no other could be detected. Besides, I could not find that they were working on anything else in particular at the time. Once or twice before when I had not many bees I secured some. But that year the bees fairly swarmed on it, as they sometimes do on basswood.

Sang Run, Md., Feb. 25. C. A. MONTAGUE.

PROPOLIS DEPOSITED IN A LIQUID STATE.

Before the introduction of the movable frame I used the Miner cross-bar hive. A piece of thin cotton cloth was spread over the bars when a swarm was hived, to prevent the bees from attaching their combs to the loose cover between them. This was allowed to remain two or three days, and then removed. On removal it was generally found to be almost or quite saturated with liquid propolis, and was as limp as if wet with water. This and some other circumstances have led me to believe that bees use propolis in only the liquid form. Indeed, it is difficult to conceive how they can handle it in a semi-solid state. I have often seen them loading their pollen-baskets with the solid material; but I think they liquefy it before using it. With this liquid they varnish their combs, and all other surfaces within their hives, and wherever else they may cluster.

That motion called "raking," so puzzling to many of us, is, I think, simply a part of their manner of doing this job. A. S. MARTIN.

Roanoke, Va., March 4.

[It can scarcely be doubted that propolis is put on in a liquid, or partly liquid, state. The bees secrete some sort of fluid that seems to cut it enough to render it plastic and liquid. I can hardly think that the "raking motion" has any thing to do with propolis. The motion is witnessed only at the entrances; at least, I do not remember to have seen it elsewhere. At all events, there is no sign of propolis where they have been raking; but I do find particles of paint removed.—ED.]

GOOD WINTERING SO FAR.

I have been much pleased to-day, Feb. 19. As I was sitting in the office a hen cackled in the workshop, and I opened the back door to see what was the matter. The sound that struck my ears caused an alarm. I thought robbers were at work in the apiary, and hurried out. A glad surprise met me. It seemed that all the bees from every hive were in the air giving one glad hallelujah for a free foot, or, rather, a free wing. I went to the hives, and pulled away the blocks which some of them had in front, and they had a general house-cleaning. I think there were not more than 100 or 150 dead bees thrown out of each hive, notwithstanding the severe zero weather and the snow 15 or 18 inches deep for the last three or four weeks. They were in single-walled Dovetailed hives, without a particle of protection; for if they can not live in such hives through our winters, only 6 below zero, I want to know it before I get any deeper in the business.

Port Norris, N.J., Feb. 19. J. R. PRICHARD.

DANGER IN SULPHURING COMB HONEY; A BED-BUG STORY.

I should like to caution beginners in the bee-business about using sulphur smoke on comb honey to destroy miller-worms, as directed by Mr. Doolittle. Last fall I sold my honey to Byron Walker, of Evart, Mich. He directed me (after grading up the honey) to burn sulphur in the room; to cork it up around the windows, and burn a pound of it. Inclosed I will send you a piece of wood showing what sulphur smoke will do. I had to put more than 100 lbs., out of 1400 lbs., that Mr. W. had graded A, into grade B; and some of grade B was not fit to send to market at all—not that Mr. Walker would not have been obliged to take it, but I could not afford to sign my name to it. After I wrote him about it he said he had tried burning sulphur on old comb only, but got his authority from Mr. Doolittle. By the way, Mr. Walker buys a very large amount of honey every fall. He is a square man to deal with. His own honey amounted to about 22,000 lbs., counting in what he got from one apiary that he has in Wisconsin. Now, I am very much interested in Mr. Doolittle's writings, and have

gained some very valuable pointers from his writings, and believe he is one of the safest guides in the United States.

Mt. Pleasant, Mich.

H. S. WHEELER.

[The sample of wood sent is considerably discolored on one end. I think Doolittle is all right, and that the trouble was in your giving the honey too much sulphuring. Too long a sulphuring will turn every thing yellow, as I happen to know. Let me give an illustration: Years ago, when I slept in the shop as a sort of "night watch," I discovered, much to my dismay and sorrow one morning, that bedbugs—yes, real live crawling ones—had gotten into our little room. Now, you know I couldn't stand that, so I sulphured the room a little, including its contents. But it didn't kill 'em. "Next time I'll kill 'em sure," I said, and accordingly built up a big sulphur fire in a large kettle, and shut the room up tight for three or four hours. Did it kill the bugs? Indeed it did, and, more than that, the side walls of the room were covered with a yellow sulphur deposit; in fact, every thing was covered. There! don't tell any one I've slept with bedbugs.—ED.]

THE FOOD SUPPLY OF FLORIDA.

This is the fourth winter that I have spent in Florida, and I've watched with much interest to see where the food-supply of the inhabitants came from. In mingling with them on sailing excursions I took note of their lunches, and I invariably discovered food obtained from the stores. I can speak intelligently of only this portion of the State. Plums, peaches, pears, mulberries, dewberries, nectarines, and scuppernong grapes grow in great profusion. Christmas day, oranges and lemons amid the green leaves were a thing of beauty; but now, not a green leaf decorates the trees. This is a new town, settled by Northern people, and fruit-trees are too small to bear much.

In the issue of GLEANINGS for Feb. 15, there is a good representation of the head of saw-palmetto, under the large letters "red cabbage-palmetto." In looking at it I wondered where the head of cabbage was, and I failed to discover it. I think what is said of the edible part is rather misleading. I've questioned many persons who have lived among it all their lives, and they tell me that the cabbage is the bud; and in order to make it palatable it must be parboiled to remove the bitter. I would obtain one of these cabbage-head if I did not consider it sacrilege to destroy one of these noble trees to obtain a bud of about the size of my fist, which would require a great stretch of imagination to think was cabbage, which can be raised in a short time, of much finer quality. If I'm not mistaken, the name is not derived from this bud, but from the imbrication of the leaves. If you look at the trunk of one of these trees you will see the bark imbricated, overlapping each other like the leaves of cabbage.

Most of the native women know how to make palmetto hats. They take the center leaf while it is folded together, before it spreads

out, and it does not harm the tree. These hats are very comfortable and durable.

Palmetto logs are used for building piers, as they resist the ravages of time and corroding worms more than other wood.

St. Andrew's Bay, Fla. MRS. L. HARRISON.



SIXTEEN extra pages this time, instead of eight.

ADVERTISERS who see fit to patronize us now ought to get good returns. We shall be publishing, from now on, until the early part of summer, extra editions. The present issue reaches 15,000 copies, and it appears evident that we shall have to print extra copies, for a time at least, to keep pace with the demand.

IN speaking of winter losses in his vicinity, Mr. H. R. Boardman, of East Townsend, O., at the end of a letter, writes:

Of all those in my vicinity who have kept bees, and have taken no bee-papers, I can not think of one who has not failed; while those who have taken a journal have nearly all succeeded. I think this needs no comment.

H. R. BOARDMAN.

East Townsend, O., March 27.

WE are giving our readers now a very large amount of reading-matter—perhaps more than many of them will be able to cover; but I appreciate the fact that what may be interesting to one may not be to another, and I try, therefore, to give a wide range in apicultural lore. I am sorry that so many unused manuscripts are now on hand to which I fear I shall never be able to give a place in our columns; but I am striving earnestly to give you the very best we have, properly seasoned and dished up.

A VERY tall compliment was paid us by Mr. D. M. McGaffick, who gave us a call, also of the United States mail service, from Pittsburg to Chicago. Said he, "Of the tons and tons of mail matter that I handle, that which comes from the Home of the Honey-bees is the nicest."

"Why?" said I.

"Because your packages are always nicely wrapped, and the *county* is invariably supplied. If manufacturers only appreciated the importance of this one item they would greatly facilitate the delivery of their mail matter." Here is a point for our subscribers.

THE question is asked in the *American Bee Journal*, "Question-box" department, whether it is advisable to spread brood. Of the 23 who answer, all advise against it excepting Mrs.

Atchley, who speaks for it. For her locality—the extreme southern point of Texas—there is no danger; but experience seems to show that, when practiced in the spring, usually more harm is done than good. If the experts are shy of it, the beginner had better let it entirely alone. I have spread brood, however, in early summer, with great advantage; for I was after increase with a vengeance, and got it. I increased some fifteen colonies, fair to middling, up to 80 good ones, by the first of September. Of course, to do this I had also to divide.

MR. S. E. CORWIN, of Sarasota, Fla., seeing the recent article on candied honey, forwarded the following that he received from one of his old customers who, it appears, purchased honey of him seven or eight years ago:

Friend Corwin:—Do you remember the case of honey you sent up here while my father was sick, some seven or eight years ago? Well, I have three or four bottles of it now. I opened one night before last, and it was apparently just as good as when first received, and not at all candied.

Fall River, Mass.

CHAS. B. LUTHER.

I have long known that honey would keep almost indefinitely; but it is very seldom indeed—in fact, I do not remember to have seen an instance before—that pure honey had kept as long as this without candying. Can any of our subscribers trot out a better?

ADULTERATED FOUNDATION.

A FEW weeks ago we sent to Mr. O. O. Poppleton, of Potsdam, Fla., some small pieces of adulterated foundation, half ceresin and half beeswax. The amount was so small we were afraid that perhaps the experiment might not be satisfactory; but we had only a little of the ceresin wax on hand. Here is what he writes:

I mail you to-day those three pieces of foundation from adulterated wax you sent me to have drawn out by the bees. I don't think it will take more than a glance to show you that it's "no good." Had it shown no stretching when used in such small pieces, I should not have considered that an adequate test had been made of its value when used in full sheets; but if such small pieces will stretch, what would full sheets do? You will observe the sample of thick foundation has stretched less than the medium, and the medium less than the thin; but all entirely too much.

I suppose my extreme southern location, and our having a usually steady flow of honey all winter and spring makes it easier for us here to make any such experiments as this has been than almost anywhere else in the United States.

Potsdam, Fla., Mar. 27.

O. O. POPPLETON.

We hope to get a larger quantity, and have the experiment tried by different bee-keepers—not that we have any desire to put such an article on the market, but only to prove more conclusively what our early experiments years ago seemed to demonstrate; viz., that pure beeswax gives altogether the best results in the

way of foundation. How any one can be satisfied with a half-and-half mixture, even at a reduced price, is beyond our comprehension.

THERE is talk in the *American Bee Journal* of reorganizing the old Northwestern Bee-keepers' Association. The old organization was a power for good, and would never have disbanded except that it was deemed advisable to concentrate its energy in the State association, having an annual appropriation of \$500.

FOUL-BROOD INSPECTOR Wm. McEvoy, it appears, has done some pretty thorough work in eradicating foul brood in Ontario. If he continues in office (as we hope he will) the disease will soon be a thing of the past for Canada. Every State on this side should have at least a foul-brood law. While it is improbable that we should be able to get a State appropriation to defray the expense of an inspector, we should have the law, so that it may be used in case of emergency.

IN our next issue, Trade Notes, Mr. Heddon and Mr. Danzenbaker will discuss further, in a friendly way, the patentability of divisible brood-chambers. Some interesting points will be brought out on the subject of patents in general, by both parties. I do not know to what extent this question will be interesting to our general readers; but unless they signify a general desire to have the subject continued, I believe it would be better to have it dropped with our May 1st number. As I have already said, we desire both parties to have a fair hearing. If they wish to continue it further, they can probably do so through the medium of Mr. Heddon's paper.

THE time has now arrived when we should be gathering our usual annual honey statistics, or, rather, statistics of winter losses. We desire every bee-keeper who will, upon receipt of this number, to send us, on a postal card, answers to these two questions: 1. What per cent of your own bees were lost during the past winter, up to the time of your writing? 2. What per cent were lost in your vicinity? In order to get the facts in time for our May 15th issue, it is absolutely necessary that you give this your attention at once. The more distant States, such as California and the like, do not have the winter problem to contend with; but we think the most of the others will be able to report so we can get something of an idea as to how bees wintered, by our May 1st issue. Do not pass the matter over, thinking somebody else will do it for you. We need reports from every one.

IN another column, H. R. Boardman writes that he put out his bees on the 5th, from his bee-house, and reports "no loss, and condition perfect." I should like to know, just for the fun of it, whether he would winter as well in

Langstroth hives. If he will procure, say, a dozen colonies in such hives, with loose bottoms, we will pay the expense of transferring to his own hives if they do not winter as well. This is not a challenge to Mr. Boardman; but it might help to throw light upon a point concerning which there has been more or less guessing. For the present I can only say that, with his square and deep hives, he seems to winter better than his neighbors with the Langstroth. In fact, he appears to be the only man, so far as I know, who winters year after year with no loss. Years ago we gave a picture of "the man who never loses bees," and that was none other than our East Townsend friend.

WINTER losses throughout the country, so far as I can gather from the reports, will not be nearly as bad as I at one time feared. The heaviest losses seem to be among the careless bee-keepers—those who have a fashion of letting the bees take care of themselves, largely, or among those who, as Mr. Boardman himself says elsewhere, do not take any bee-paper. Our colonies at the basswood yard, all in one-story chaff hives or winter cases, wintered perfectly, so far as I could see when I went down a few days ago. A large part of their stores was sealed basswood honey that had been kept in combs stored away in stacked-up hives. Late in the fall these combs were distributed in some of the more needy colonies. In addition, we fed very little sugar syrup. Our home-yard loss will aggregate more than I stated in our last issue, from the fact that I supposed we had more colonies than we actually had. The corrected per cent of loss is 4.

DEAD-AIR SPACE HERMETICALLY SEALED, VS. PACKING-MATERIAL.

THE following short editorial is from the *Bee-keepers' Review*:

"Dead air is all right, providing you can get it in a space or compartment that is air-tight," so reads a sentence in an editorial in a late issue of *GLEANINGS*. I beg to differ. It makes no difference, if the space is between two walls that are hermetically sealed, if these walls are placed between two different temperatures, the air next the wall on the warm side will become warmed and will rise, while the air next the cool wall will become cooled and will settle; thus there will be a circulation inside of even an hermetically sealed space, that continually robs the warm wall of its heat and passes it over to the cold wall. The filling of this space with sawdust or chaff breaks up this circulation.

When I first read it over I was inclined to think Mr. Hutchinson was right and I wrong. Then it occurred that I had read recently in one of the mechanical journals that a steam-pipe incased tightly in wood, leaving an air-space of one to two inches around the pipe, was a better protector than a similar pipe similarly incased in wood, with packing-material occupying the air-space. I am sorry that I can not now refer to the authority; but a long series of

figures by the government inspector was produced to show this. And here is another illustration that means a good deal: Years ago the cylinders around steam-engines of the highest grades contained a casing of wood; and between the casing and the cylinder proper, packing-material; but latterly it has been found that a casing of either iron or wood, leaving a dead-air space of two or three inches, without any packing, gives the best results—that is, the least condensation. The point is right here: Packing-material itself becomes, to a greater or less extent, a conveyor of heat or cold. The better the material, the less it conveys. But the best non-conductor of all seems to be air, pure and simple. If this is correct, my original proposition is all right, friend H.; but dead air space in hive-construction is impracticable and out of the question, and we therefore have to resort to packing. It is true, you may say steam-pipes are usually covered with pipe-covering or plaster; but it is not always found practicable to make a wooden casing around a pipe air-tight; and, moreover, insurance companies do not recommend it. But my proposition was for a space hermetically sealed.

SHALL FOUNDATION BE EXCLUDED FROM THE MAILS?

As our readers know, we have for many years sent small quantities of comb foundation by mail to all parts of the United States, and there has never been any question till recently but that such matter was permissible in the mails. On the 15th of last March, Route Agent C. M. Cotterman, of the United States mail service, came across a package of foundation from us that, it seems, had come in contact with, or at least very near to, a coil of steam-pipe, and melted, leaving, as he said, little but the wrapper. In his opinion, this was not a proper subject to send through the mails, and so reported to headquarters. The matter was referred to our local postmaster, and by him to us. On the 25th of March we dictated a note stating that we had for 20 years been sending foundation by mail, and that no question had ever arisen as to whether it was legitimate mail matter. We sent a duplicate packet to the department, asking them to examine carefully the same, explaining that it was simply pure beeswax embossed with the impression of the base of the honey-cell. On the 28th of March we received the following, which settles the question, at least for the time being:

Mr. L. S. Smith, P. M., Medina, O.:—You can continue to accept and forward these packages. If we have further trouble with them it may be necessary to exclude them from the mails, but this office does not feel justified in doing so as yet. Section 322, Postal Laws and Regulations, 1893, prescribes that salves and ointments must be put up same as liquids, while hard candy, yeast cakes, and soap can be forwarded when simply wrapped in paper and enclosed in pasteboard or wooden boxes. Beeswax, while having some of the characteristics of both of

these classes, really belongs to neither, and I think we can give it the benefit of the doubt until it is demonstrated that further restrictions are necessary.

ALEX. GRANT,

*Acting General Superintendent.
Washington, D. C., March 28.*

It seems to me that comb foundation would pretty nearly come under the category of soap. It would not soil articles in the mail-pouch any more than that article, and its melting-point would be about the same. As it is, we do not see how the General Superintendent could have decided other than to accept.

As the temperature next to the steam-pipe must have been about 180 degrees, it seems to us unreasonable to throw mail-sacks against it, and yet demand that articles in the sacks injured by such treatment should be excluded. When absent-minded Isaac Newton found his fireplace so hot as to singe his clothing and chair, he ordered his servant to come and remove it; but his servant, when he came, said it was easier to wheel Sir Isaac a little further off. "Good!" said Mr. Newton. "I never thought of that." Perhaps Route Agent Cotterman had not thought of the foundation question in that light before.

LONG HIVES HORIZONTALLY, VS. TALL OR TWO-STORY HIVES.

In my Notes of Travel I omitted to mention friend Poppleton's apiary at Potsdam. He still uses what was called, years ago, the "Long Idea" hive. Of course, you can use whatever frame you choose; and where there are no upper stories at all, a frame a little narrower and a little deeper than the Langstroth may be advisable. Friend P., like some of the rest of us, is not very strong. He says that, for years, he has not been able to do heavy work of any kind, and it would be out of the question for him to think of lifting off an upper story; therefore he makes his hives as long as the needs of the colony demand it, and has the combs all side by side. In opening a hive, nothing is necessary but to remove a very light thin cover. As a proof that his plan is not a very bad one, he has succeeded in harvesting some of the largest crops of honey made in Florida or anywhere else, and I believe the work has almost all been done by himself and wife. Of course, they have to work pretty hard when a big honey-flow comes suddenly; but with the honey-flow come inspiration and energy: and, so far, with the inspiration and energy, strength has been vouchsafed, so that no honey has been wasted. May be you have seen bee-keepers before who were unable to do hard work; but when the honey came in at the rate of several barrels a day, some way they managed to get it out. Now, friend Poppleton has quite a few disciples scattered throughout Florida, and they are sufficiently successful to show that his plan is certainly not a very bad one. May it not be that such an arrangement succeeds better in the warm climate of Florida than it would away up north, where it is so much more important to economize the animal heat of the brood-nest?

A. I. R.

ROBBING SICK PEOPLE.

STATEMENT OF THE UNITED STATES CHEMIST IN REGARD TO THE CLAIMS OF ELECTROPOISE.

Notwithstanding the plain and clear *expose* that has been given for months past in these pages, there are quite a few who continue to insist that the Electropoise people, and others of the same stripe, have made a scientific discovery. They admit that physicians do not accept it, but give, as a reason, that they are jealous, because "it will spoil their business," etc. Now, I felt almost ashamed to refer any thing so ridiculously and plainly a sham to such an authority as the United States Chemist; but I finally decided to do so; but in order to have the matter perfectly fair and clear, I give you my letter to Prof. Wiley first:

Prof. H. W. Wiley.—Dear Sir:—We come to you this time with something that may not be altogether in your line; but even if this is true, you could do us and the people at large just now a great service by even a couple of lines with your signature attached. Very likely you are acquainted with the humbug mentioned and described in the little pamphlet inclosed. If you are not, please turn to page 5 and read the paragraph around which I have penciled a line. Now, if you can give us permission to say that you pronounce this neither sense nor science, it will be all we ask. Should you care to say more, however, it will be more acceptable to us than you can imagine.

The inclosed galley-proof of an article that appeared recently in our journal will give you some idea of the periodicals that have been helping in the *expose*.

Your in the cause of *true science*, and especially medical science. A. I. Root.

Medina, O., March 27.

The pamphlet mentioned above was, of course, the Electropoise company's circular.

Well, here is his answer in plain black and white:

U. S. DEPARTMENT OF AGRICULTURE,
DIVISION OF CHEMISTRY,
WASHINGTON, D. C.

Mr. A. I. Root, Medina, Ohio:

DEAR SIR—I was much interested in reading your letter of the 27th ultimo, and also in looking over the enclosures which you sent. You ask my opinion of the marked part of page 5 of the circular which you enclose. From a scientific point of view it is rank charlatany. I should want to go no further than such a sentence to form an opinion of the merits of the invention. I do not think, however, that I could properly give an opinion on the invention itself, as I do not claim to be an expert on electrical matters. I fully agree with you, however, that it is a humbug, pure and simple.

I am, respectfully, H. W. WILEY,
April 1, 1895. Chemist.

You will see that I expressly asked his opinion in shape so that I might make it public. I hope the above may settle the matter in regard to the scientific part of their invention. In regard to the electrical part of the discovery, all electricians have pronounced it a fraud so far as that goes; and, in fact, the Electropoise people themselves now admit that it is not electricity, though they did not at first.

To meet the charge that I have not made an actual test myself, let me say that I have now in my possession one of these instruments; and, after testing it thoroughly, I can say conscientiously that it amounts to nothing more than would a brass button dropped into a bowl of water, a piece of wire being attached to the button, and the other end connected with the ankle of the patient. It is true, the metal case contains sulphur, carbon, etc.; but as the case is perfectly tight, and none of the water in the bowl touches the chemicals, the said chemicals have absolutely nothing to do with the instrument. There is nothing at all about

the arrangement to make it worthy of the name of apparatus; and if it does perform cures, it is, as I have said before, exactly in line with the idea that a horseshoe nailed over a door wards off disease.

Pardon me for saying once more that this revelation of fraud that has been practiced upon intelligent people forces us to the conclusion that Tammany Ring, of New York, was not the only place that needed ventilating and holding up to the public gaze. The saddest part of the whole matter is, that it is a great part of the religious papers of our land that need the *expose*. It pains one to the bottom of his heart to see the excuses the managers have made, for continuing to accept such an advertisement. When summed up it amounts to but little less than that there is "big money" in it, and that they *need* money, and *must* have it.

If there are among our readers those who would like to help in ferreting out and exposing this fraud, I would ask them to examine the advertising department of their family papers; and whenever any thing of this sort is found, write at once to the publisher with a protest. Mail them this number of GLEANINGS, or clip out this article, and we will send you as many copies of GLEANINGS as you can use for the purpose. We will have some extra slips preserved containing this item. Any one can have as many of these slips as he can make use of. They will be a little handier to put in a letter instead of taking the trouble to mail the journal.

A. I. Root.



What therefore God hath joined together, let not man put asunder.—MARK 10:9.

There was once a schoolboy whom we will call John; and there was also in the same neighborhood a schoolgirl whom we will call Mary. Mary was a professor of religion: John may have been, but I do not exactly remember now. At any rate, they were very good people, and, I believe, they stood well in the community round about them. By accident, perhaps it was, these two became somewhat intimate in their schooldays. John, however, decided, before the intimacy had gone so far as to attract attention, that she was not exactly the woman he would choose for a wife. This may not have been through any fault of the young lady, but simply because he judged their dispositions were not exactly congenial. Some time passed; and as he gave her no more attention than he did the other girls of the school, a third party—a young man whom we will call Henry—began to be somewhat intimate with Mary. Of course, this was nothing to John, until finally Henry made some disrespectful remarks about the young lady, in John's hearing. Perhaps Henry did it on purpose to see whether John still felt any particular interest in her. John, of course, felt pained. He studied the matter over, and decided that some one ought to tell Mary what Henry had been saying, for she would most assuredly cut his acquaintance if she knew it. For reasons that may be guessed, John thought he was hardly the one to give her a warning; but as things went on, and they seemed to be getting still more intimate, Henry at the same time continuing to show a low and depraved tendency, John finally decided it his duty as a friend to Mary to suggest to her she had better cut Henry's acquaintance. Mary,

of course, thanked him for his friendly interest, and gradually excused herself for having nothing more to do with Henry. So far all went well. But this incident seemed to have opened the way, as it were, for further acquaintance and friendship between John and Mary. His better judgment told him again he had better not go on; but as Mary evidently preferred he should, it was a rather hard matter for a boy yet in his teens to break away. My friend, have you not, at some time in your life, had more or less of a similar experience? Duty points the way, but inclination does not run exactly the same way duty points; and it is no easy thing, I tell you, to always follow duty instead of inclination, especially when an interesting young woman stands in one direction and duty in another. However, John finally declared in his own mind that things had gone far enough, and turned to his studies with an earnest and manly determination to follow duty, no matter what influences were brought to bear in any other direction.

By this time, however, both John and Mary were getting past boyhood and girlhood; and when he held aloof from her she remonstrated, and finally told him that had it not been for his interference, she might have married Henry, and all would have been well; but now it was too late. If he did not want her himself when he cautioned her about being intimate with Henry, what did he want? I do not know for sure, but I suspect a woman's tears came in somewhere along here. Dear friends, it occurs to me just now that I am (perhaps unconsciously) reflecting a little severely on Mary. May be some of my fair readers will say, "That is just about the way it generally goes. The man is all right, and the woman is *entirely* to blame." You remember how Adam, away back in olden time, undertook to make out that he would not have got into any trouble if the woman—yes, the very woman whom God had given him—had not led the way. Well, I did not mean to blame poor Mary. Very likely she was more or less at fault; but the truth is, the story came to me from John's standpoint, and not from Mary's. I still think, however, that John meant to do right, for they were married soon after, and every thing should have been pleasant and lovely—yes, I am sure every thing might have been pleasant and lovely had Christ Jesus and not Satan been taken into that household. I feel sure that neither one of the two meant to take in Satan, and I know they will both claim that Satan was not invited by either one; but yet he got a foothold almost at the outset. My friends, I am a great believer in letting every young couple start out in married life by themselves—that is, if it can be so managed. For a time at least they do not need a third party to manage or suggest; and if there is ever a time in the life of any person when Satan is not needed, it is when man and wife first begin to know each other. "What therefore God hath joined together, let not man put asunder." I told you Mary was a professing Christian. I am afraid, however, her Christianity was not of a real practical kind. If I could talk with her about it she might insist that it was. I think John, at this stage, made no profession whatever. Very likely he was skeptical. Still, I believe he aimed to do right—at least, as nearly right as anybody is likely to do without Christ Jesus to guide and direct. You may guess, from what I have told you, that their start-out in life was not just the best kind of a start-out, and it was not long before little disagreements arose. John was cashier in a bank, earning a fair salary, and gave promise of being a good careful business man. He had saved a little money. Of course, his

wife knew just how much, and where it was. That is right. She ought to have known. Some of you may object to this, and there may be circumstances that would justify the husband in keeping his business from his wife; but as a rule they two should be *one*, in business and every thing else. But Mary had seen a piece of furniture that could be bought for just about the sum of money laid aside. John protested that it would be wisdom to keep a little laid up for a rainy day, or for sickness. She suggested he could earn more, and there was no peace in that little household of two until the piece of furniture was bought, to be put into a rented house. Even the coveted object, however, did not bring permanent peace, and dissension and discord soon began again to be the rule. The advent of a bright little boy did not seem to make much difference, or the difference did not last very long, and things passed on until there were two boys and a girl to be part and parcel of that home. John was getting farther and farther away from religious influence; and I am afraid the wife was only professor and *not* possessor.

Dear married friends, do you know what a terrible thing it is for discord to get possession of a household? I wonder if you have ever resolved, over and over again, that you would, on your part, stop. I wonder if you have felt sad to see this thing steadily gaining a hold, and growing, almost in spite of any thing you can do. I remember once, years ago, of visiting a home where Satan seemed to have become so thoroughly entrenched in his work that it was really fearful to contemplate. I changed the subject again and again; but every new topic seemed to raise the same trouble as the others. I remember I praised the meat that was served for our breakfast, and innocently asked what it cost in that region. Somebody said it was 14 cents. The mother replied that it was no such thing—they got the best kind of steak for 12. The man of the house retorted that he ought to know, for he bought it and paid for it. And so they went on until I was really afraid they might come to blows, notwithstanding my presence. Then I said somebody told me there were a good many rattlesnakes in that vicinity. But they disputed, and almost called each other names, because they did not agree any better about the "snakes."

My good friend, were you ever in a hurry in the morning, when breakfast happened to be late? Did you ever, almost before you thought, suggest that things were *always* late in your especial household? If the good wife had been trained to the business—but I sincerely hope she had not—she might retort that you knew you did not have to wait for your breakfast *once a month*. You see, husband and wife get so well acquainted with each other that it is their privilege to talk plain; and some people pride themselves on their habit of plain speaking. God forbid. You have no more business to give pain to your wife by your plain speaking than you have to wound or hurt the feelings of some good wife whose guest you are. By the way, shall I tell you that a great many of my sins come right along here with that restless and impatient disposition of mine? When business is pushing—and it is almost always pushing when I am around—I am up early in the morning; and if breakfast is delayed, it is the most natural thing in the world for me to become impatient, and to scold. We expect our men, as a rule, to get to their work at about 7 o'clock; and a great many times, if I am not on hand when they start out, something goes wrong. The team may go in the wrong direction, or the team and two or three

men may all be standing still and waiting for a tool if I am not on hand to find the tool or take a new one out of the store rather than waste more time than the old tool is worth. Well, if I should start everybody off at work before breakfast, Mrs. Root would be annoyed by having the breakfast late, and having her work thrown out of joint. Another thing, our morning prayers very often come right in when the men and team are waiting, or something else of a similar kind. The temptation is great to skip worship for just this time. Shall we skip it? God forbid. There may be important duties to be attended to; there may be others waiting; it may be a question of duties; but my verdict, after long years of experience, is that we had better delay almost any thing else, or, I might almost say, *every* thing else, rather than think of skipping the daily Bible-reading and prayers. A good friend of mine has said, "Stick to your family worship, and it will drive out all discord;" or, in other words, "if discord does not drive out family worship, then family worship will surely drive out discord." I know how distasteful it is to think of taking the Bible in hand just after you have been scolding or contradicting; but I have sometimes thought that we might consistently sum it up in the words of the old veteran commander Joshua. "Choose ye this day whom ye will serve." I do not know for sure that the husband is *always* the aggressor. I am afraid, however, he usually is. In a fit of impatience he makes a statement, and overstates it. When you are vexed, Satan always stands at your elbow, and urges you to put it *strong*. If you listen to him you will go so far that your wife takes it up and says, "Now, that is not true, and you *know* it is not." The latter, of course, is an additional sting to the lash; and Satan prompts you to reply, even though you *know* better when you say it, "It is true." By this time your faces are both flushed. Children are very apt learners in such matters, and the disease is terribly catching. It pains my heart as I go over it now; and yet I have, during my travels, heard almost or quite as bad as the above, even while I, a stranger, was present. Dear friends, do not be alarmed. It was not in a bee-keeper's home, and it was years ago. Perhaps I have taken an extreme case. I sincerely hope it is extreme. But now and then I get glimpses of the outcome of these things. It grows and grows; and the very best disposition in the world is hardly proof against it if one remains long where it is going on. Were I so disposed, and if Satan would lend his help—and, by the way, he is always exceedingly *ready* to help—I verily believe that I could, in process of time, make the sweetest-tempered man or woman in the world bitter and hard and ugly. I have been told sometimes that I have a *rare talent* for provoking people, when I feel that way. God helping me, I never mean to use that talent any more; and if I have such a talent, Christ Jesus has, I believe, given me another talent or gift. It certainly must have come from him, for it never belonged to A. I. Root himself—a talent for helping people to be gentle and kind—to turn away wrath with a soft answer. To turn the figure round, Christ helping me I have sometimes thought that, by taking plenty of time and great pains, and much prayer for help, I might succeed in taking one of the most bitter, hard, and ugly persons, and making him gentle and kind. It is hard work, though. A grown-up person who has fallen into a way of being hateful can be made to give it up and become sweet-tempered, only by a *tremendous deal* of hard work. It must be "line upon line, precept upon precept." It must be a continual rendering of *good* for *evil*, and replying to hard

and cutting speeches with soft and gentle answers right straight along for months, and perhaps *years*. The disagreeable person must be loved with no *common* love. That 13th chapter of I. Corinthians tells how it is done. You must suffer *long*, and be kind. You must not get provoked, no matter what happens. Neither must you even *think* evil—"beareth all things; believeth all things; endureth all things." This is the way the teacher must go to work to redeem the pupil. I know it can be done, for I have seen it done. A gentle, loving, pious wife or mother has again and again transformed a bad and wicked man, with Jesus' help. When I heard the story of John and Mary I fell to wondering how it would have turned out had Mary been *my* wife—I mean, suppose I should have been suddenly converted when well along in life, and suppose my wife was not converted, but remained just the same. The man is the stronger of the two; and if he succeeds when he takes the lead in educating his wife to discord, he can usually, by *taking the lead*, and asking for grace, lead her back to gentleness and grace and truth; and when it is done—when you have succeeded in winning your wife, oh what a *glorious* victory! If there is joy in heaven among the angels over a reclaimed sinner, what joy must there be over the mother of a home, who has been reclaimed and brought from darkness into light!

If you should be away from home, the invited guest of some well-bred people, you would never think or dream of grumbling—no, not even if the breakfast were so late as to cause you to miss your train. Now, if there is any one on earth who demands your most gentle bearing and your kindest courtesy, it is the wife whom God gave you. Some of you may suggest that God did not give her—that it came about something the way I have described in the story of John and Mary. But, my friend, you are wrong. "What therefore God hath joined together, let not man put asunder." If you are lawfully wedded man and wife, that is enough—the command of our text holds. If there are children in the home who belong to you two, then a *sacred seal* has been placed by God himself on the union that exists between you; and whether you, during the marriage ceremony, promised to honor and cherish this partner or not, all mankind and God himself expect you to do so.

I shall have something further to tell you in regard to John and Mary in our next, Providence permitting.

FINDING WATER WITH A SWITCH.

SEVERAL good friends have written me that this thing is true and honest, and that there really is a force in nature, heretofore unrecognized by science and scientific men; and several declare they can trace underground streams as you would trace a stream or brook on the surface. Now, this is going to make the test comparatively easy, if it is true: First, have a row of stakes set, outlining the course of the underground stream; then let the operator be blindfolded, and see if he will set some stakes along the same line. When you find a person who succeeds in doing this, then I am ready to pay him a visit, and perhaps take along some one from some of our experiment stations, so as to have the matter tested by a competent official.

A. I. R.



PINEAPPLE-GROWING, ETC.

Now, then, if you please, let us go back to pineapples. I think my last Notes of Travel were when I was stopping at Mr. Poppleton's. It costs from \$50 to \$75 an acre to clear up the land, and get it ready for pineapples. It is mostly done by hand, digging out the saw-palmetto roots and other trash. These saw-palmetto roots, however, are quite valuable. The State Chemist at Lake City told me that fresh roots, burned to ashes, show 42 per cent of potash—that is, 42 per cent of the *ashes* is potash. This is remarkable, when we consider that the best hard-wood ashes seldom contain more than 8 or 10 per cent, and often not half of that; and potash is in constant requisition in Florida in considerable quantities. After the land is all ready for the plants, it needs from \$25 to \$50 worth of fertilizers every year. The crop of pineapples, however, brings from \$100 to \$400.* The fertilizers used are cotton-seed meal principally; a good deal of sulphate of potash, some fish guano, and large quantities of fertilizers from the North, are used right along. Mapes', Bradley's, and Bowker's are all largely used. Pineapples are cultivated about once a month, with a scuffle-hoe. The work is all done by hand. Mr. Dyer, a neighbor of Mr. Poppleton's, had a few that withstood the December freeze, and we enjoyed beautiful fruit all the time we were in that neighborhood. There are, perhaps, a dozen different varieties of pineapples in cultivation. Some of the new varieties sell as high as 40 or 50 cents per plant. We rather thought the "sugarloaf" the most delicious. There is no seed to the pineapple—at least, I never heard of one.† New plantations are made from little plants, and the little plants are obtained in four different ways: First, the crown that comes out of the top of the pineapple; second, slips that grow around the bottom of the fruit; third, suckers; fourth, ratoons. The ratoon is a little plant that starts up out of ground somewhere near the mature plant.

In many places they protect from the frost and sun by means of strips of board. This

forms a sort of roof above the plants, just high enough so one can walk under it. It is supported by posts. The strips of board are three inches wide, and the space between the strips is three inches. The cost of covering a whole acre is about \$800. This protection keeps off any ordinary frost; but during the severe freezes of February, the protection did not seem to amount to very much, unless it was pretty well south. At Fort Myers, for instance, the plants seemed to be almost, if not quite, uninjured underneath the covering.

Friend Poppleton kindly took us in his sail-boat, and we visited pineapple-growers and gardeners for quite a distance round. Florida is just commencing to do considerable in the way of irrigation. The nicest apparatus we found on the East Coast was at Dr. Howland's, who has a gas-engine, such as I have described, for pumping water. We found it down in the woods, at work all alone by itself, pumping the water out of a spring. The doctor was in his garden with his men, perhaps a quarter of a mile away, at work with his crops. He has iron pipes laid on top of the ground, 20 feet apart. At intervals of 20 feet along these pipes a $\frac{3}{4}$ -inch standard goes up, perhaps four feet high, having a revolving sprinkler on top. This gives the effect of a gentle rain all over the ground where the pipes are laid. The capacity of the engine is hardly sufficient to pump water enough to sprinkle the whole acre at once. Perhaps a quarter of an acre is sprinkled at a time; but by running it about four hours, the ground seems to be sufficiently wetted. In Florida they are hindered a great deal by different kinds of insect-enemies; and certain kinds of garden vegetables, in some localities, can not be grown at all on account of these. Well, the doctor informed us that the sprinkler proved to be a perfect remedy for these pests. There are not many kinds of insects that can do much damage while it is raining; and with the light, sandy soil they have, there is not very much danger of injuring anything by too much wet; therefore the doctor had some of the most beautiful summer squashes, onions, beans, and almost every other vegetable, just smiling under the influence of water and sunshine all at the same time.

During our many pleasant boat-rides around the home of friend Poppleton, we met again and again the queer phenomenon of a tree having limbs at both ends. One set of limbs goes up into the air, and the other set goes down into the water. As a consequence, in the course of time one single tree may cover an acre or a whole island with its growth so dense that nothing larger than a cat or dog would be able to get through. This queer tree is called the red mangrove, or aerial plant. According to Webster it "spreads by emitting aerial roots, which fasten in the saline mire and eventually become new stems. The seeds also send down a strong root while yet attached to the parent plant. The fruit is sweet and eatable. The bark is astringent, and is used for tanning." It does not bear honey, or, at least, not enough to be of any actual use like its near relative the black mangrove. The seed is a queer-looking thing, about the size and shape of a cigar. When it drops off into the water, one end sinks and the other end floats on top. When it comes up near the shore, so the lower end touches the bottom, then roots put out, and the queer-shaped tree is the result. Whenever one sees these queer-looking trees skirting the edge of the shore or an island, he thinks of the banyan-tree that we used to look at in our geographies, away back in the old schoolhouse on the crossroads.

While visiting the pineapple groves we saw

* Like most other fruits and vegetables, there is a chance to do big things with pineapples under favorable circumstances and with the best of care and fertilizers. For instance, Mr. Poppleton sent six pineapples to Jacksonville, and they sold for \$1.25 each, and he actually received from the commission merchant \$1.00 apiece for them. I think they weighed 15 or 16 lbs. each. A pineapple has been produced in that neighborhood, having the enormous weight of twenty-two pounds. I mention this only to show the possibilities in that line.

† After the above was in type, friend Poppleton kindly sets me right, and gives us the following information:

Friend Root:—Pineapples do have seeds, either a mature or immature one in each eye. You may remember I told you that the apple had a small purple blossom at the point of each eye. I don't think any were quite far enough along when you were here to be in bloom; but you might have seen them later on when you were at Fort Myers. Mr. Johns told us the sheds we visited near here were so much of a protection that the February freeze did him no damage. Ordinary seasons we have ripe pineapples every month in the year. The main crop comes in June and July; but a plantation of, say, 10 acres would ship a few crates to market every month in the year, except, possibly, April and May, and would have enough more ripening along at all times to fully supply a family.

a queer animal washed upon the shore, about the size of a cow, and with a head looking considerably like that of a cow. This is called the sea-cow, or "manatee." Friend P. tells me these are quite common in these waters, notwithstanding the fact that many of them have been exhibited in shows as being "the only living specimens," etc. These animals are 15 feet or more in length, and are found both in fresh and salt water.

About the 7th of February, we bade adieu to the kind friends at Mr. Poppleton's, and moved on further north to Gifford Station. Constance had got rather used up by mosquitoes at Lake Worth, and moving about so constantly every day, so she went back to Jacksonville for "re-pairs." Even if Gifford was in the wilderness, I found a very good road for my wheel, and in due time reached the Gifford mansion. This is only about a quarter of a mile from a town called Vero. But the conductor would not let me off at Vero, so I had a wheel ride as a consequence. As I came at a time when they were not expecting me, I found no one at home but a miss of ten years old. She and I soon became excellent friends. She told me how they managed the postoffice, and said she could do it all herself; and I was greatly surprised to hear her answer questions that I put to her in regard to general postoffice business. Her name is Ruby. She not only told me about the postoffice, but about the neighbors and other things. They are so far away from everybody that they have no schools for her to attend; and, in fact, there is not any little girl for a playmate within miles in any direction. The State of Florida, however, is not forgetful of her children. There is a provision by law, so that each pupil receives, if I am correct, \$10 for a term of 16 weeks. The county superintendent decides, at his examinations, whether the money has been well expended. Accordingly, I found my young friend Ruby remarkably bright and ready. I suppose one reason why we became fast friends in so short a time was that she rather hungered for companionship of any kind. If she could not have a little girl to talk to, a man 55 years old, like myself, would do a great deal better than nothing.

After a while I took my wheel and went out to meet her brother, who was at work with the horses and farming-tools, a couple of miles away. You see, friend Gifford has horses and wagons, etc., after all. And, by the way, he has some land around him that *warrants* having Northern tools. It is not all sand, let me tell you. After I found Charles (Ruby's brother), I went out to meet friend Gifford himself. His garden was of wonderful interest to me, especially the new, strange fruits. There were mangoes, guavas, mulberries, sugar-apples, tamarinds, sour-sops, cherries, grape-fruit, etc. The last-named tree was left with part of its crop hanging to its limbs for my special benefit. The tree was scarcely as high as my head, only three years old, and yet it had borne three bushels of fruit. One bushel remained on the tree, left for me. The grape-fruit grow so close as to touch each other, and I believe this has suggested the queer name—grape-fruit. When one is tired and thirsty during hot weather, it is wonderfully delicious.

When I arrived the mulberry-trees were bending with loads of berries almost big enough to begin to turn red. During the night, however, both berries and foliage were literally cooked by the frost.

Friend Gifford is an enthusiast on mangoes. It is a tropical tree of most rapid growth, and the fruit is greatly sought for after one has learned to eat it. Friend G. is satisfied that it has wonderful curative properties, especially

where one is troubled with disordered stomach or bowels. Some people, who have not learned to eat it, say it tastes like cotton batting soaked in coal oil; but, notwithstanding this, others are so extremely fond of it that the fruit on a single tree at St. Lucie, one season, brought the sum of \$150; and Mrs. Prange (who is kindly taking down these notes for me) adds that the family found this one tree their main support. In fact, it is about all they have to get a living from. Now, when I was writing, a few months ago about supporting a family on a *quarter of an acre*, some of you were inclined to make fun of the idea; but here is a family depending upon a single fruit-tree, without saying anything about as much land as a quarter of an acre. When I expressed my incredulity in regard to this statement, friend G. said the man's name is Alec Bell, and that I could easily get the full facts if need be. He added, however, that one reason why they received so much money from the crop was that it seemed to be an extremely fine variety, and many sold for an extra price because the parties buying wanted the seeds to plant. Friend G. added further, that there were mango-trees standing in his garden that he would not have taken \$100 for, before the December freeze. I suggested that, for \$100, he could have covered the whole tree, trunk and branches, with a heap of dirt; and this, indeed, might have been done, or something like it, in many cases; but the frost came "like a thief in the night," and nobody thought it was going to hold on so long without letting up.

Another of friend Gifford's hobbies is Japan persimmons. This is a new fruit that has not been very much grown in Florida; but fine specimens, I am told, have been sold for a nickel apiece. The fruit of a good variety is as large as a good-sized peach; in fact, they have been raised $4\frac{1}{2}$ inches in diameter. And this fruit is clean pulp clear through—there is not a stone or seed of any kind. The tree is a wonderful grower, like the mangrove, and I think it has not been very much harmed by the freeze.

Another of the Florida fruits is the Avicado pear; but almost everybody calls it the "alligator" pear, because it comes handier to say alligator than "Avicado;" and after you have it said, it is not a pear at all, even then; but it is a beautiful fruit. Did I tell you that Florida is the greatest place I ever saw in the world for fertilizers of every sort? Why, the outbuildings of even the humblest home to the biggest hotel are almost invariably provided with galvanized iron pails, or some equivalent (Terry's plan, you remember), to receive and preserve the night-soil. When anybody wants to plant a tree he digs quite a little cavity, pours in a pailful of this night-soil, mixes it with the sand until it is thoroughly incorporated, and not at all offensive, then plants the tree, and it has a good send-off. No matter what a man works at, he has some trees or fruits of some kind growing in his dooryard, and therefore he is interested in saving everything in the shape of fertilizer. Well, near friend Gifford's home there are great droves of wild cattle; and up near the river there is a clean spot of ground that, for some reason or other, is almost free from vegetation. Here the cows come to lie down nights. At intervals friend Gifford goes out with his wagon and scoop-shovels, and gathers up the "cow-chips" as they call them in Florida. His beautiful fruit-orchard is fertilized almost entirely by this manure.

On one of our visits we called on a Mr. Weis. This man, although he lives a sort of hermit life, all by himself, away out in the swampy woods, where not even a road of any kind runs anywhere near him—this poor lone bachelor friend has one of the prettiest gardens I ever

saw. We found bananas, date palms, potatoes, cabbage, string beans, and even some beautiful flowers, and nobody but himself to enjoy them. You might have known I would have made a protest against such a waste. Why, there are thousands of industrious, intelligent German women who would *delight* in finding such a home, and they would give this poor, lonely man a glimpse of happiness and companionship such as he has never *dreamed* of; and then there would probably be some reason, in course of time, for building a neat little *schoolhouse* away down in those Florida wilds.

Several times I wondered why it was that everybody in Florida was planting beans; and it was just one kind of bean, too—the Refugee, or Thousand-to-one. They say the golden wax beans do not do well in Florida; but they produce this one kind of string bean. I did not see any beans in Florida, however, with the rank, luxuriant growth we have here on our clay soil; but when I suggested as much to friend Gifford, he replied that they sometimes sold a single crop for \$400 per acre, even if they did not get such tremendous crops as we do. His daughter, Mrs. Sprange, here puts in, by way of parenthesis, that sometimes the crop brings nearer 4 cents per acre.

Ruby's mother died of consumption less than a year ago. They brought her to Florida when it was too late, although her life was prolonged several years, so the friends believed, in consequence of getting to Florida when she did. The cook of the family, while I was there, was a boy who had formerly served in that capacity on board of a steamboat. In consequence of dull times he was out of employment, and friend Gifford took him in, and I found him making himself exceedingly handy, indoors and out. In one of our trips through the woods, we came across a deserted plantation, where orange-trees were planted twenty years ago. Nobody has tried to do anything with it for years past, and the place has all grown up to forest; but the orange-trees, mostly the sour variety, grow right out in the woods, and bear considerable crops. I found some of them that had escaped the frosts, and I thought them quite delicious.

Almost all through Florida, bee-keepers complain of the depredations of bears. Once upon a time a bear visited an apiary where there were cases of sections all ready to come off. The bear took off the top of the hive, then took two cases of sections, one under each "arm," and started off for the forest. I presume he was a little bashful about sitting down and eating his honey there so near the bee-keeper's home. The owner of the hives, however, heard the racket, and put out after him. The consequence was, Bruin dropped his cases of honey in the bushes, and put off without them. I asked the owner if he actually *saw* the bear going off with a case of sections under each arm. He admitted that he did not see the operation, but replied, "But, Mr. Root, how else could he have carried them? Please tell, will you? I chased the bear away, picked up my two cases of sections which he dropped on top of the bushes, so as not to break or injure them; and, in fact, they were in such good order that I shipped them both to New York, and sold them with the rest. Now, how did the bear carry those two cases out into the woods unless he had one under each arm and walked on his hind feet? Please tell."

Now, friends, I am sorry to say that I can not at this very minute tell who told me this bear-story. It sounds very much as if it were A. F. Brown; but if he absolutely declares that he did not tell it, then it must have been somebody else.

I suggested to friend Gifford that he should

keep store in connection with his postoffice, and that Ruby would make a tip-top clerk. But he said he had had "store" enough in the North—that he does not want to be bothered any more. There is not a store or grocery of any sort within six miles of him. I happen to know, however, that he does quite a retail business as it is, for Ruby says they sell oranges for a cent apiece, and honey for 5 cts. a pound, at retail.

You remember what I said about the Weather Bureau and the oranges? Well, during the freeze of Feb. 7 I had an opportunity of seeing something of the difficulty of transmitting cold-wave messages in the interior of Florida. On the 6th of February, about 10 o'clock in the morning, Jacksonville was notified that a cold wave would reach there during the night. This message was promptly telegraphed to Titusville, where they ran up the cold-wave flag. The displayman also mailed cards of warning to all the postoffices in the county. One of these cold-wave cards, passed Vero postoffice on the train at 7 o'clock in the evening. There is so little mail in the evening, however, that they have decided to let it all go down to West Palm Beach, and come up the following morning at 10 o'clock; and, accordingly, at that time next day, we were notified of a cold wave coming. We got the notice several hours after the mischief was done. Now, this happened right on one of the main lines of railway too; how would it be several miles away from either railway or telegraph lines?



THE NEW CATALOGS.

Look out for the catalog that praises every thing unstintedly, and especially where the good qualities are mentioned of every fruit and vegetable, and none of the objectionable qualities. We have catalog men now who report almost as faithfully and disinterestedly as do our experiment stations, and these men should be encouraged and patronized. Take the Timbrell strawberry for an illustration. How many of the catalogs tell you that, while it is one of the grandest new berries, it has one very objectionable feature—a mottled white tip, even when the berries are perfectly ripe?

VARIATION IN PRICES OF POTATOES, ONION-SEEDS, ETC.

If you will look over the seed-catalogs you will see what a wide margin of prices is given on the same article. For instance, one seed-catalog will put seed-potatoes at \$2.25 per bushel, while another one quotes the same variety at \$2.25 a barrel. Again, some of our leading seedsmen in the great cities are still asking \$2.50 a peck for onion-sets, potato onions, multipliers, etc., while other friends who live out in the country are offering the same thing, and would be glad to get \$2.50 for a whole bushel. Perhaps it is no particular business of ours; but I would advise that, before you send off your hard earnings, you look over the agricultural papers and see the bargains offered in their advertising columns, and also look carefully over the catalogs sent out by practical farmers.

WHITE VICTORIA ONIONS.

I believe we were among the first to introduce and recommend these beautiful fine large onions; but of late there has been more or less

complaint that the seed produced onions of different kinds, not true, etc. In Burpee's 1895 catalog we find the following by way of explanation:

Since first introducing these onions, we have each year heretofore imported seed direct from the original growers in Southern Italy (whose gardens we have several times visited); but we regret to announce that the seed sent in the autumn of 1893 (for sale last year) was not true to name. Therefore we have been forced to discontinue the sale of imported seed, and now offer exclusively AMERICAN-GROWN SEED. Unfortunately, the Italians do not seem to realize the importance of *purity in seeds*, but we did think that we could rely upon the original growers maintaining, by careful selection, the true type of these Victoria onions. Fortunately, however, much of the seed sold last year had been grown for us at home, so that all our customers who ordered Victoria onions did not receive the inferior Italian-grown seed; but those who did, if they will kindly notify us, are now entitled to select fresh American-grown seed, to the same value, without cost.

W. ATLEE BURPEE & CO.

We are glad to see the above from friend Burpee. It has the right ring; and we make the same offer to all who bought seed of us of the White Victoria. If it did not prove to be what it ought to be, tell us how much seed you had and when you got it, and we will send you good seed, or, at least, seed bought directly of Burpee, in place of it.

PARIS GREEN TREATMENT FOR CODLING MOTH.

The United States Department of Agriculture sends out the following:

Secretary Morton, in an interview to-day, said:

"The apple-trade of the United States with foreign countries has always been profitable. The demand for apples grown in the United States has always been in excess of the supply. The United Kingdom of Great Britain alone, during the nine months ending September, 1894, paid the orchards of the United States \$2,500,000. The greatest enemy to our export apple is the 'codling moth.' But the entire crop can be made wormless if the orchards of the United States will use the following recipe:

"Use Paris green at the rate of 1 pound to 150 gallons of water. Weigh out sufficient poison for the capacity of the tank used, and make it into a thin paint with small quantity of water, and add powdered or quicklime equal to the weight of poison used, mixing thoroughly. The lime takes up the free arsenic, and removes the danger of scalding. Strain the mixture into the spray-tank, taking care to pulverize and wash all the poison through the strainer. During the operation of spraying, see that the liquid is agitated with sufficient frequency to prevent the settling of the poison.

"The prime essential in spraying is to break up the liquid into a fine mist, so as to coat every leaf and part of the plant as lightly as is consistent with thoroughness. This should not require more than from 3 to 7 gallons for a comparatively large fruit-tree.

"Let the first spraying follow within a week after the falling of the blossoms of either apple or pear, and follow this with a second treatment just before the fruit turns down on the stem, or when it is from $\frac{1}{4}$ to $\frac{1}{2}$ inch in diameter. The first spraying reaches the eggs laid by the moth in the flower end of the fruit, shortly after the falling of the blossoms; and the second, the later eggs laid by belated moths. Do not spray trees when in bloom; and if a washing rain immediately follows treatment, repeat the application.

"Knapsack sprayers suitable for applying the insecticide can be obtained at reasonable prices at all agricultural-implement stores."

Washington, D. C., March 23.

THE ONION-MIDGE.

This insect is so small that it can hardly be seen by the naked eye. I had just as thrifty onions last year as anybody could wish to see; then all at once they commenced to die from the top down, before they had begun to bottom. I went to work and sprayed them with Paris green, but that did no good; then I spray-

ed with London purple, and that did no good. Next I took slacked lime and put it into a coarse sack and dusted the onions in the morning when the dew was on. I made them clear white, but that did no good. Then I got some soot from the chimney and dusted them early in the morning, and made them clear black; but they worked right on, and killed all my sets and the big onions too. Are there any of the GLEANINGS readers who know anything about the insects? I should be glad to find out what to do to get rid of that onion-destroyer.

HENRY PAULUS.

New Philadelphia, O., Feb. 12.

I myself have been considerably troubled for fear the onion-midge might commence again in our locality as it did last season. Some of the onion-growers think, however, it was mainly caused by the drought—that plenty of rain would have drowned them out, or at least hindered their enormous propagation. I am glad you have tried all the things you have mentioned, and reported to us, for it will save others from going through the same experiments. On page 396 of this journal for July 15, 1894, I described the onion-midge, and said that our experiment-station folks visited the large onion-fields, and made some experiments; and they decided, I believe, that the only feasible remedies were tobacco tea or dilute carbolic acid. The latter will be the cheaper—one part of carbolic acid to 100 parts of water put on the onion-tops with a spray-pump. If our Ohio Experiment Station, or, in fact, any other, have any thing better to offer than the above, we shall be very glad indeed to hear from them. Our American Pearl onion is so early that it has so far nutured a crop before the midge really got to work.

WATER CRESS—A CAUTION.

This variety is what the English and German people are so fond of. I have a large spring in which, a few years ago, some roots were set. They increased very fast from seed floating down stream, and soon filled the open ditch, and choked the side drains, and caused the sediment and mud to fill the ditch for a mile in length. This had to be cleaned out at great expense to avoid flooding the ground. A word of caution here may save you a world of trouble. It sells readily, tied in bunches about what your hand will reach around. I get $2\frac{1}{2}$ cts. a bunch wholesale, and 5 cts. retail. Where it is kept at stores it is set in pans with an inch of water or more, where it will keep without wilting, for some time. It is used in hotels to garnish dishes, and is eaten similarly to celery, by dipping in salt. Some use vinegar, the same as in eating lettuce.

CHAS. MILLS.

Fairmount, N. Y., Mar. 24.

FIVE SASHES.

Several years ago I got five sashes. April first I helped prepare a bed, and had a kind hand make a frame to put over it. The sashes cost me \$6.50, the lumber \$1.00. I placed the thermometer inside on a nail, and brought out my seed-basket. I put in a row of celery four inches from the front of the frame, always in the coolest shaded place; then crosswise, several rows of tomatoes; then one and a half sashes were sowed to Grand Rapids lettuce; then cabbage, sage, and cauliflower. We had lettuce for general family use in three weeks, and used daily till garden lettuce was ready. We sold \$4.40 of cabbage and tomato plants, besides setting a large garden at home. The tomatoes were dropped seed by seed about an inch apart, of Dwarf Champion sort, and made the

finest plants I had ever grown. For earliness, robust growth, satisfactory fruit, and freedom from disease, I grow the Champion. My five sashes have since been my delight, and twice paid for themselves, besides the home pleasure and benefit.

MRS. L. J. PAGE.

Faribault, Minn.

FLORIDA UP TO DATE, ETC.

The Alec Bell mango-tree story is rather large, but you haven't told it all, even yet. It was *three* years instead of *one* that the fruit sold for \$150. I have the finest beans I ever saw; shall commence shipping this week. Potatoes, cabbage, and watermelons are looking well. Japan persimmons are loading with fruit. If half hold on, the trees will have to be supported.

Bees are doing well. I am painting all of the hives over new, and shifting all the bees into newly painted hives, taking pains to cut out all burr-combs, and to put all drone-combs in upper stories.

H. T. GIFFORD.

Vero, Fla., Apr. 8.

SWEET CORN.

We have found an excellent demand for our crop of fresh sweet corn in neighboring city markets. City people seem to find it quite difficult to get their corn fresh. After it has lain in the stores a day or more it rapidly becomes tough and stale, and its quality rapidly depreciates, until soon it is hardly good for anything. Consequently, corn freshly gathered, brought in directly from the farm, is a welcome article. To make a good succession through the season, sow Cory first, then Minnesota, and, last, Stowell's Evergreen. The last should be sown several times at intervals of ten days, to have plenty of corn until frost comes. The early corn will probably bring at retail 20 to 25 cts. per dozen. Soon it will fall to about one cent an ear; but even at this last price there is a fair margin of profit, especially when the stalks are prized as horse or cattle food, as they justly should be. The feeding value of the stalks materially reduces, even if it does not quite offset, the cost of cultivating the entire crop. A fair estimate of the proceeds from an acre of sweet corn would be from \$75 to \$100; and, considering the labor expended, the sweet-corn crop averages about as well as the majority of farm and garden crops. One good thing is, that corn is not over-particular as to soil. A tough sod, turned over in May and enriched with fine barnyard manure, answers well for this crop. Or we may use nitrate of soda, superphosphate, and wood ashes, if we have not the manure to spare.

STRAWBERRIES.

The strawberry is the most luscious of small fruits, and the spring is by all odds the best time to set out plants. At the outset, take some care to secure vigorous young plants for setting. The common opinion seems to be, that any young plants that will grow answer well enough—a great mistake. We want young plants from large vigorous older plants, that have never been allowed to produce a berry. Fruiting-beds, and beds for propagating-purposes, should be regarded as distinct affairs. It is desirable to have the plants we are to set out come from the strongest parent stock possible. Next after getting the proper plants comes the planting. To secure the largest possible specimens of berries, confine the plants to hills 18 inches apart in each direction, only one plant in a hill; but to secure the largest crops of large berries, grow strawberries in *their* beds. A closely matted strawberry-bed means small, soft, poorly flavored berries.

Plants of almost any vigorous-growing variety, if set in early spring in rows four feet apart, the plants two feet distant in the rows, will cover the ground as closely as is desirable during the season. To cause the runners to cover all spaces uniformly, it is well to arrange them by hand in any cases where they do not properly separate naturally. By placing a little fine dirt just above the roots of the runner it will be held in place, and the process of rooting facilitated. Apply wood ashes for fertilizer, and cultivate often till the vines obstruct the work.

M. SUMNER PERKINS.

Danvers, Mass., Feb. 8.

MICHEL'S EARLY STRAWBERRY.

I am sorry to see Michel's Early in the list of "poor" ones at your agricultural station. I am growing Bederwood, Bubach No. 5, Crescent, Jessie, Michel's Early, and Warfield; and Michel's Early made the best stand of plants and gave the most berries (nice perfect ones too) of any of them. For one I shall not give up the Michel's Early yet.

Eldora, Ia., Jan. 19.

J. W. BUCHANAN.

WHAT SHALL WE DO?

We can not take very much space in such a journal as this to discuss the financial and social matters that seem to be filling our newspapers at the present time; but I hope I may be pardoned for this suggestion: A great many people seem to claim that the world owes them a living and does not pay it. I fear this is bad philosophy. The world owes no man anything until he has earned it. When he has earned it, the world *generally* pays it. If manufacturers, bankers, etc., are so greedy and dishonest, do not have any thing to do with them. My father went into the woods, and chopped logs enough to build a house, brought up a family of seven children, without any help from manufacturers or millionaires, and it seems to me that is just what our people ought to do now. God surely helps those who help themselves.

A. I. R.

DAYLIGHT AHEAD.

You may remember that, when Dr. Wilford Hall got to doing an immense business in selling his internal water cure at \$4.00 for each secret, there began to be imitations. Somebody offered the same thing for \$2.00, and then somebody else came down to \$1.00, and so on to 50 cts., and lastly to 25 cts. At the latter figure there was not enough money in it to cause a great scrabble any longer, and so the whole thing went down, and the secret was published in the papers. It is now getting to be just so with Electropoise, and a \$5.00 machine is already advertised. Very soon they will be down to \$1.00, and perhaps 50 cts. The question is, will the 50-cent one cure diseases just as well as the \$25.00 one? I am afraid it will not—not even if they should sell the very same thing that is now selling for \$25.00, for 25 cts. There is a tremendous lesson to be learned right along here; but will the people learn it? Will those who have been paying out so much money for medicines and expensive apparatus have grace to admit they made such a blunder in thinking the thing really did possess virtue?

A. I. R.